FIG. 1

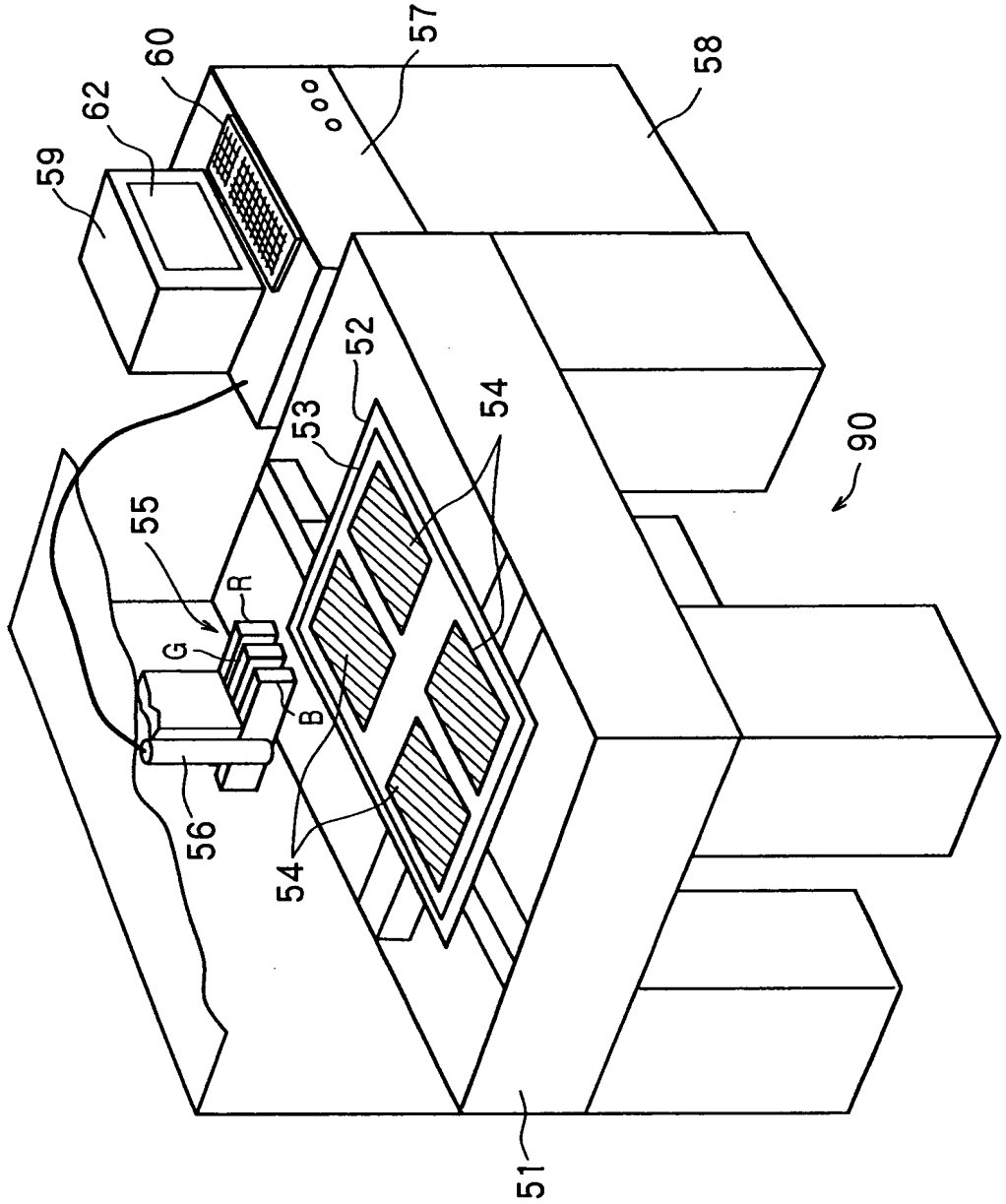


FIG. 2

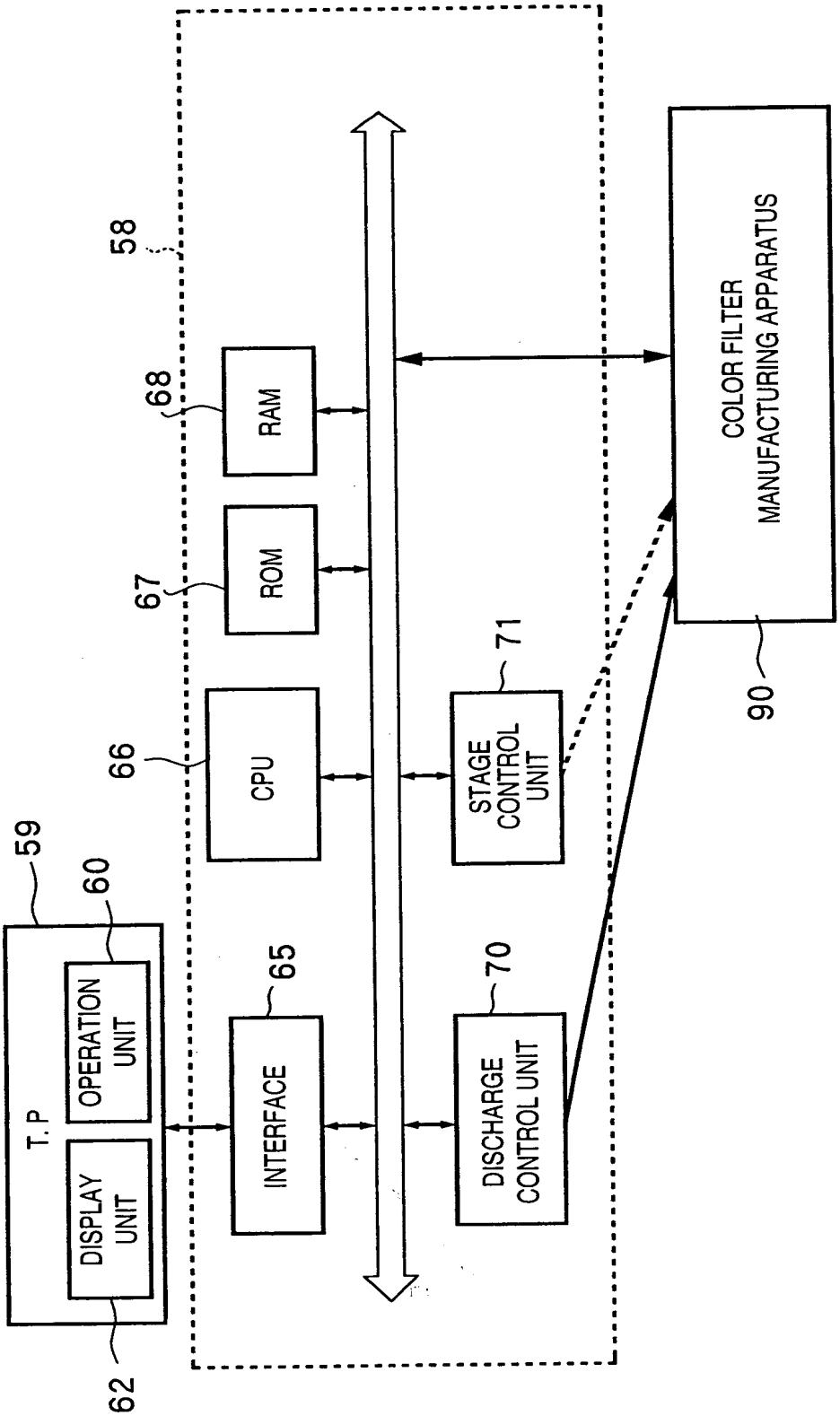


FIG. 3

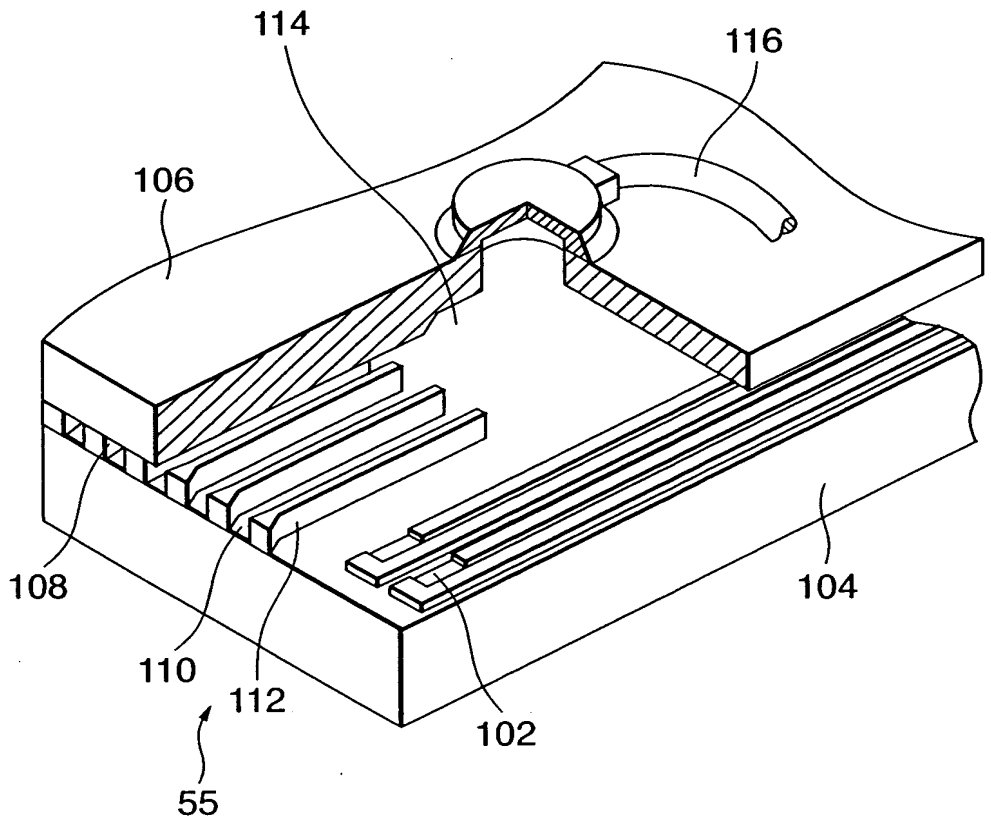


FIG. 4

DISCHARGE AMOUNT AT CONSTANT ENERGY AND TEMPERATURE		RESISTANCE VALUE OF HEATING ELEMENT	DRIVING VOLTAGE WAVEFORM	DISCHARGE AMOUNT IN PRACTICE
NOZZLE 108a (HEATER 102a)	36p ℓ	200Ω		40p ℓ
NOZZLE 108b (HEATER 102b)	40p ℓ	200Ω		40p ℓ
NOZZLE 108c (HEATER 102c)	40p ℓ	210Ω		40p ℓ

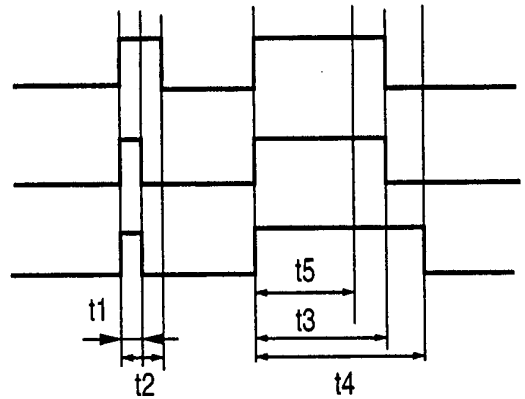


FIG. 5A

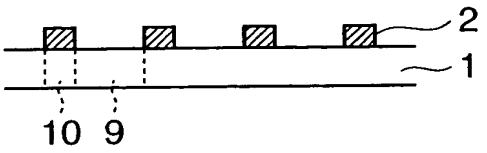


FIG. 5B

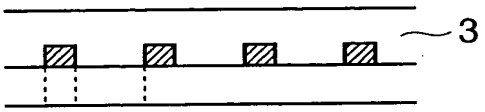


FIG. 5C

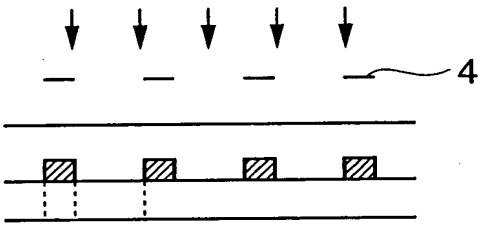


FIG. 5D

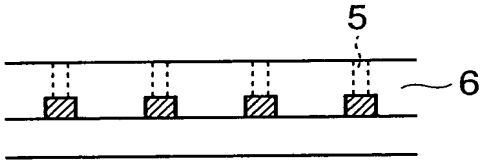


FIG. 5E

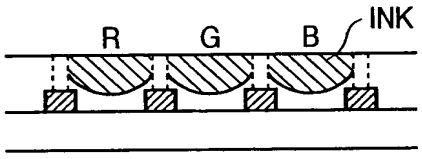


FIG. 5F

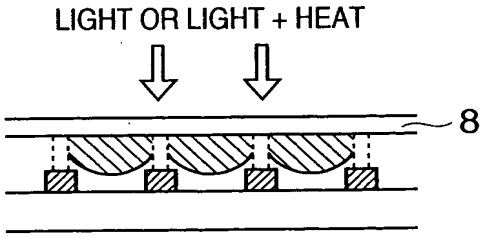


FIG. 6

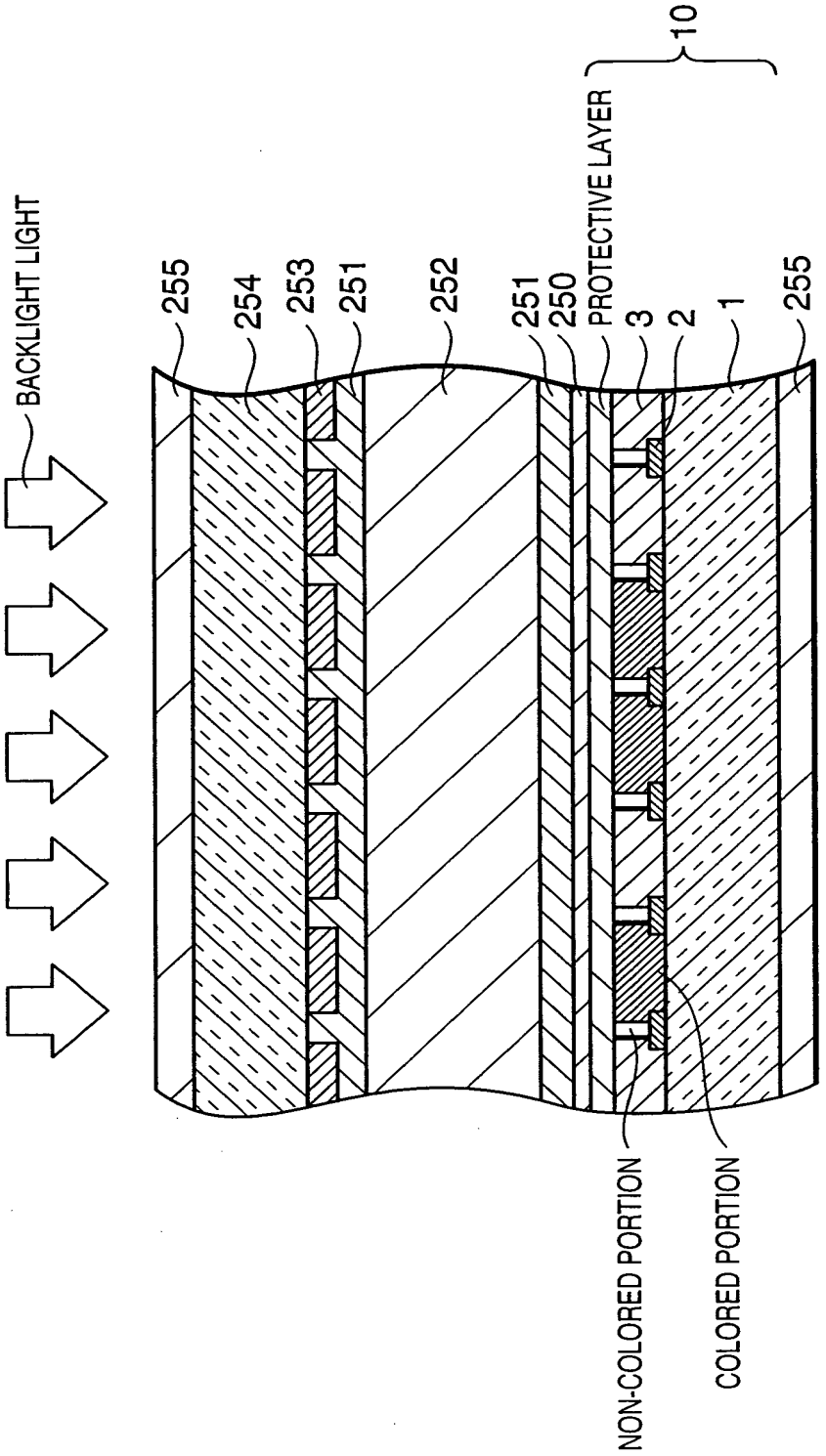


FIG. 7

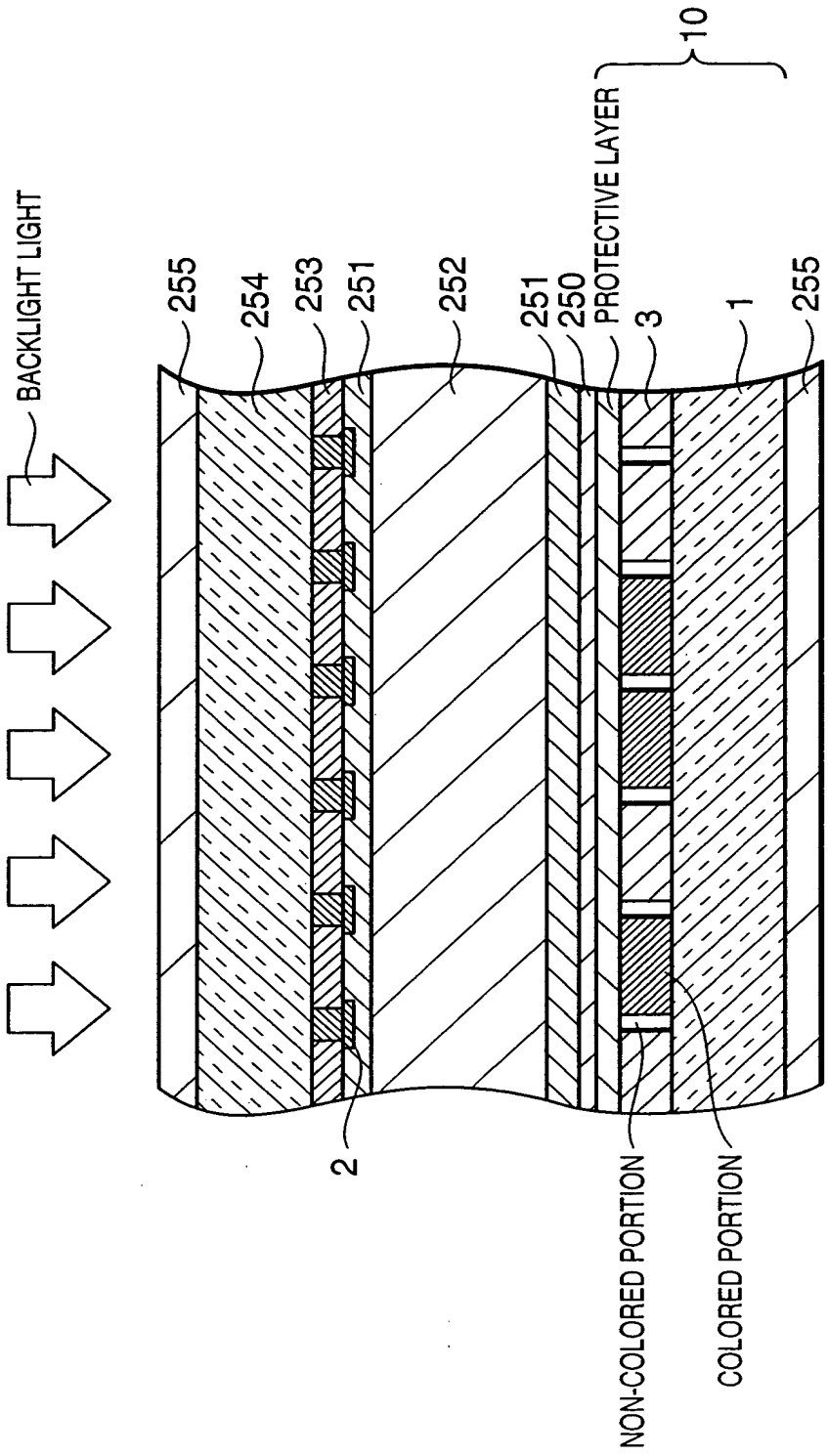


FIG. 8

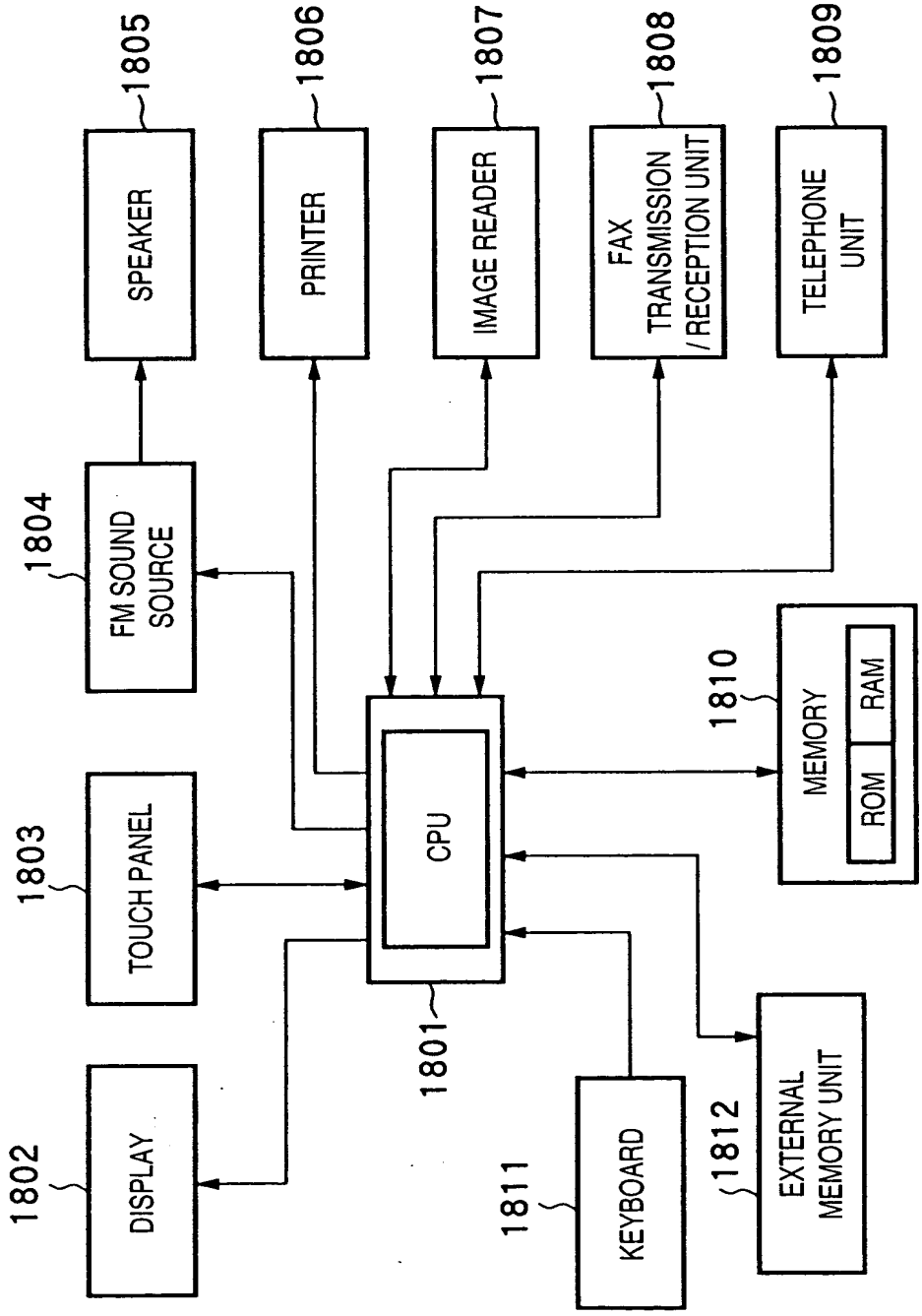


FIG. 9

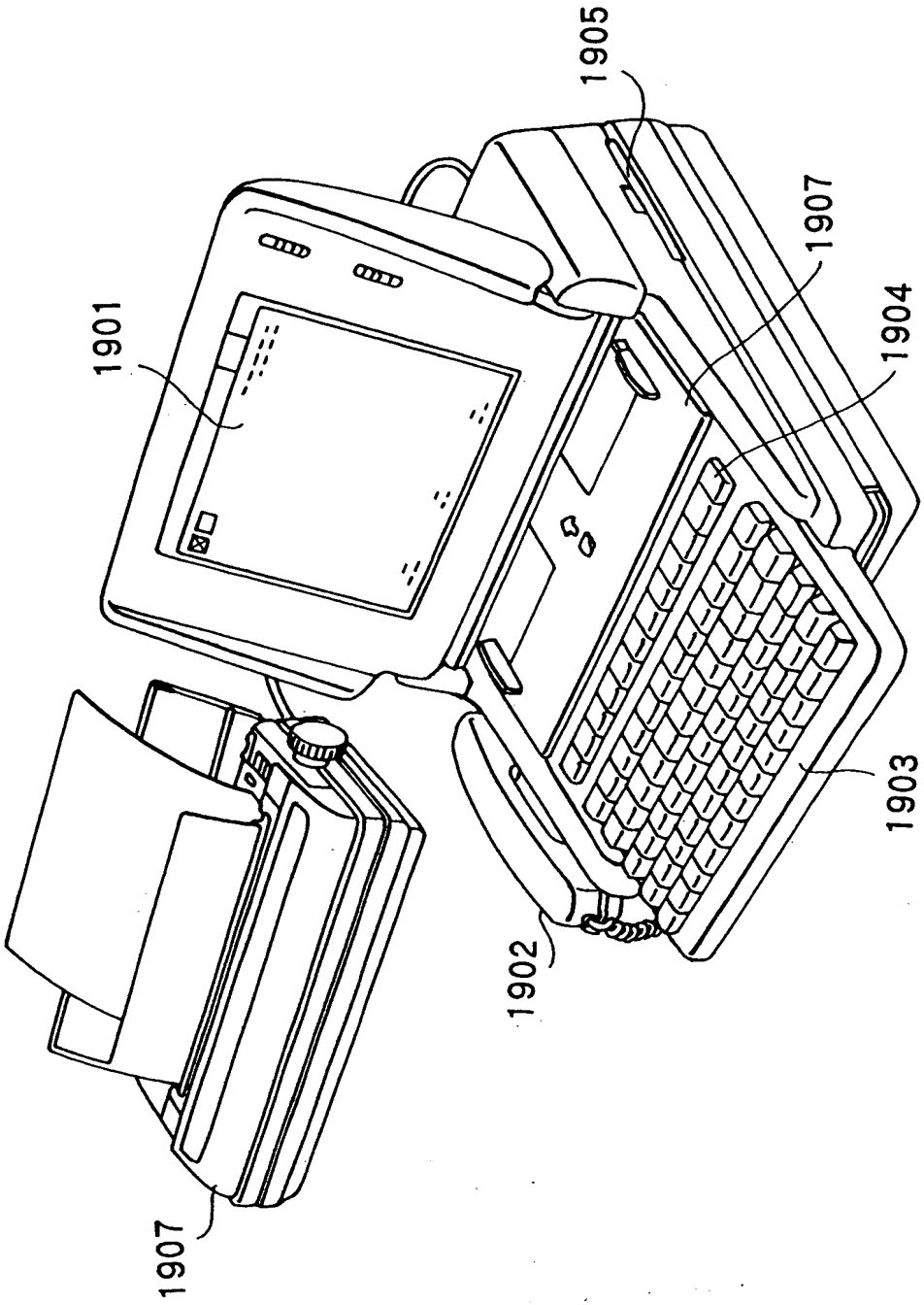


FIG. 10

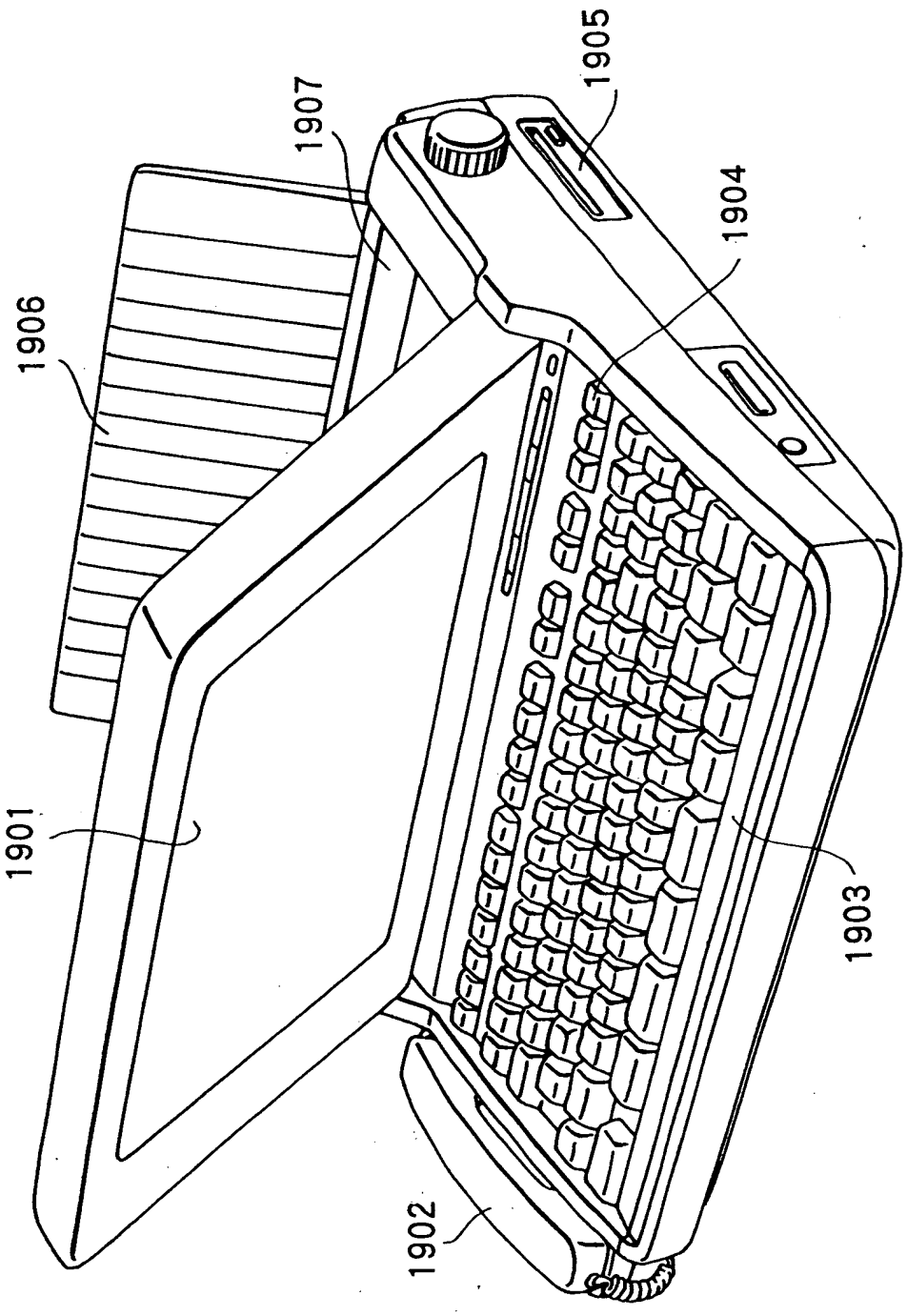


FIG. 11

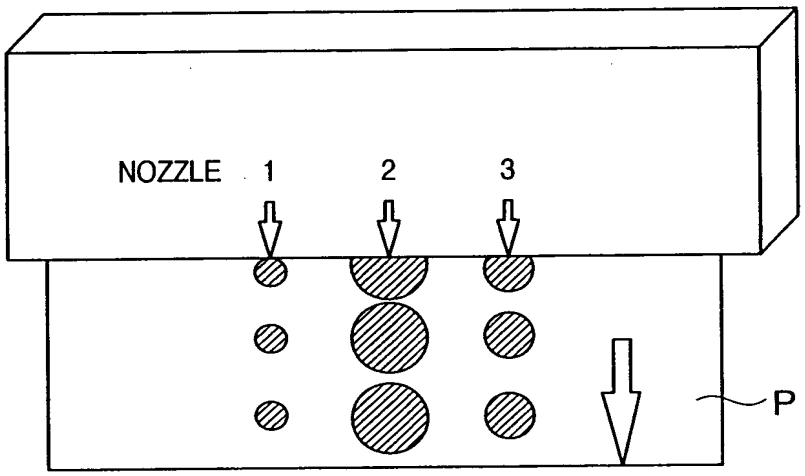


FIG. 12

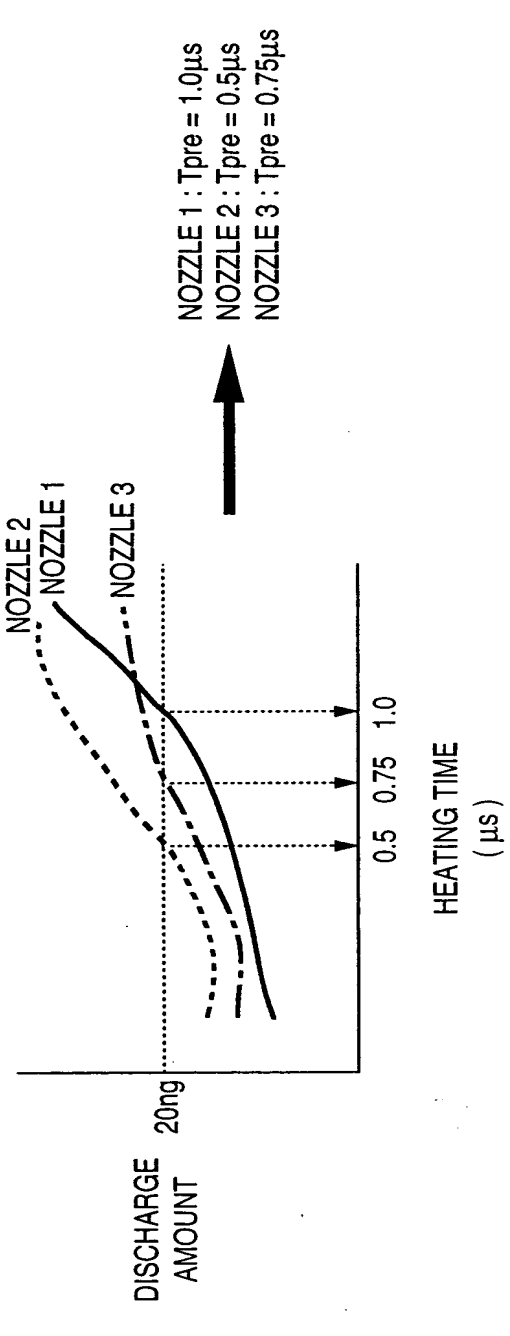


FIG. 13

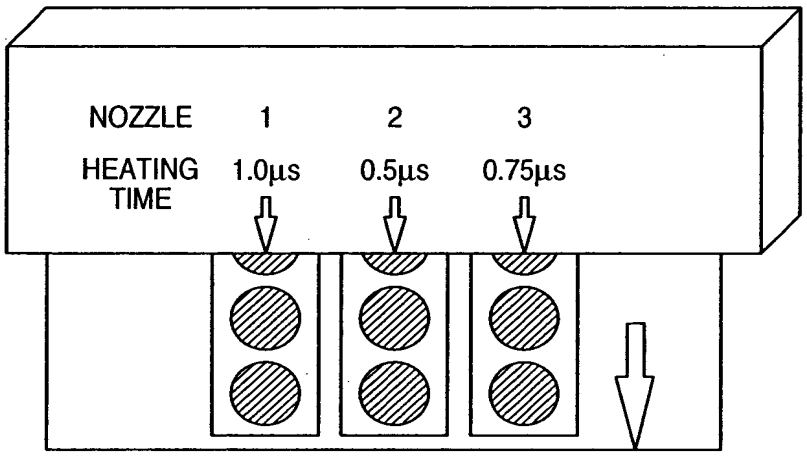


FIG. 14

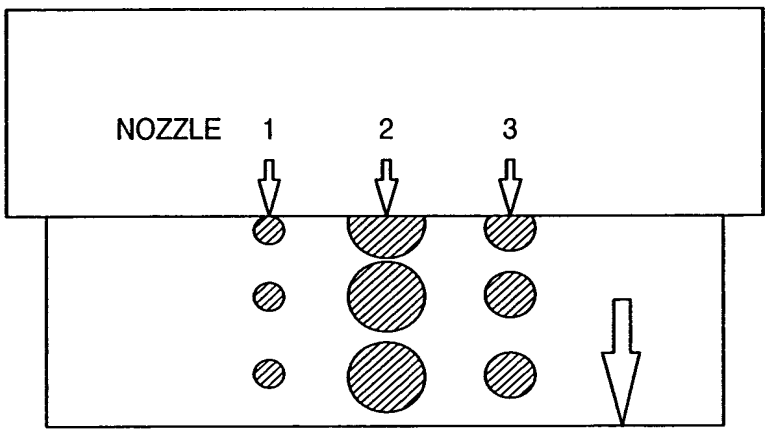


FIG. 15

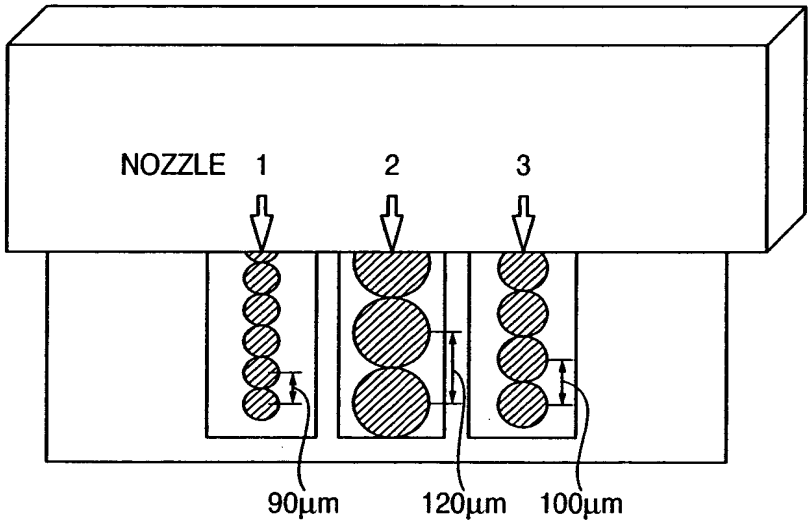


FIG. 16

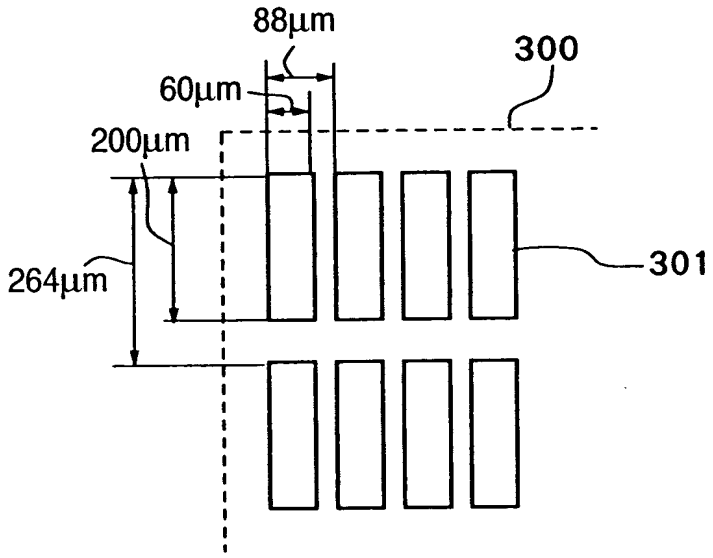


FIG. 17

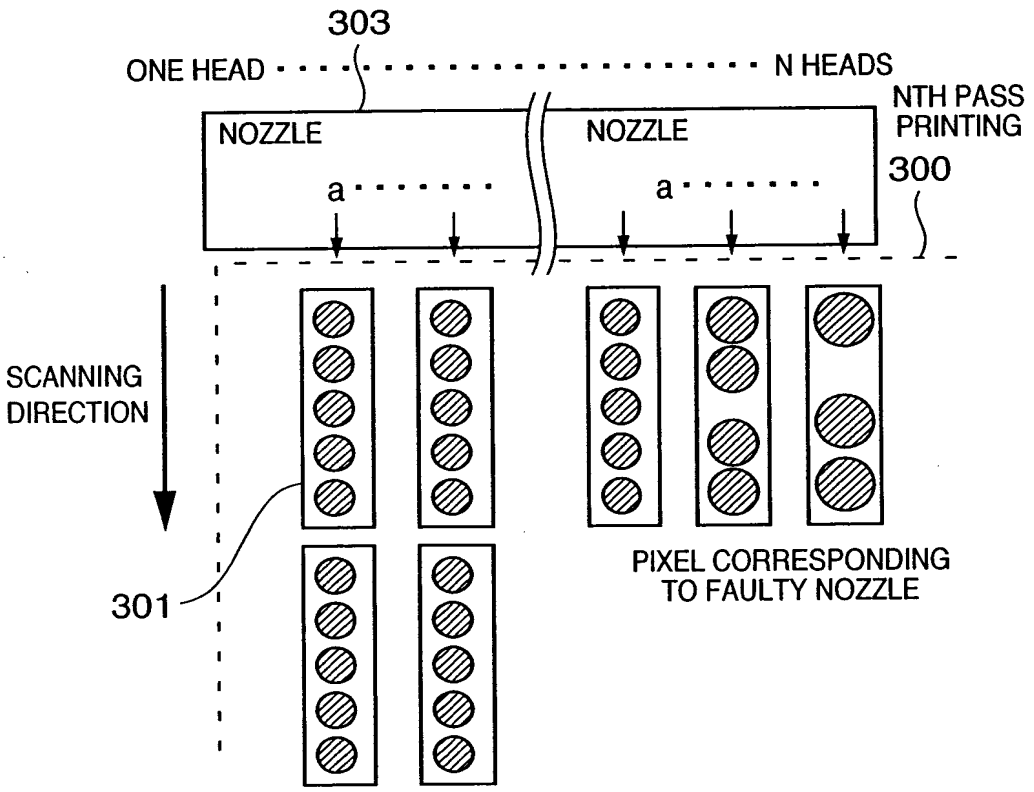


FIG. 18

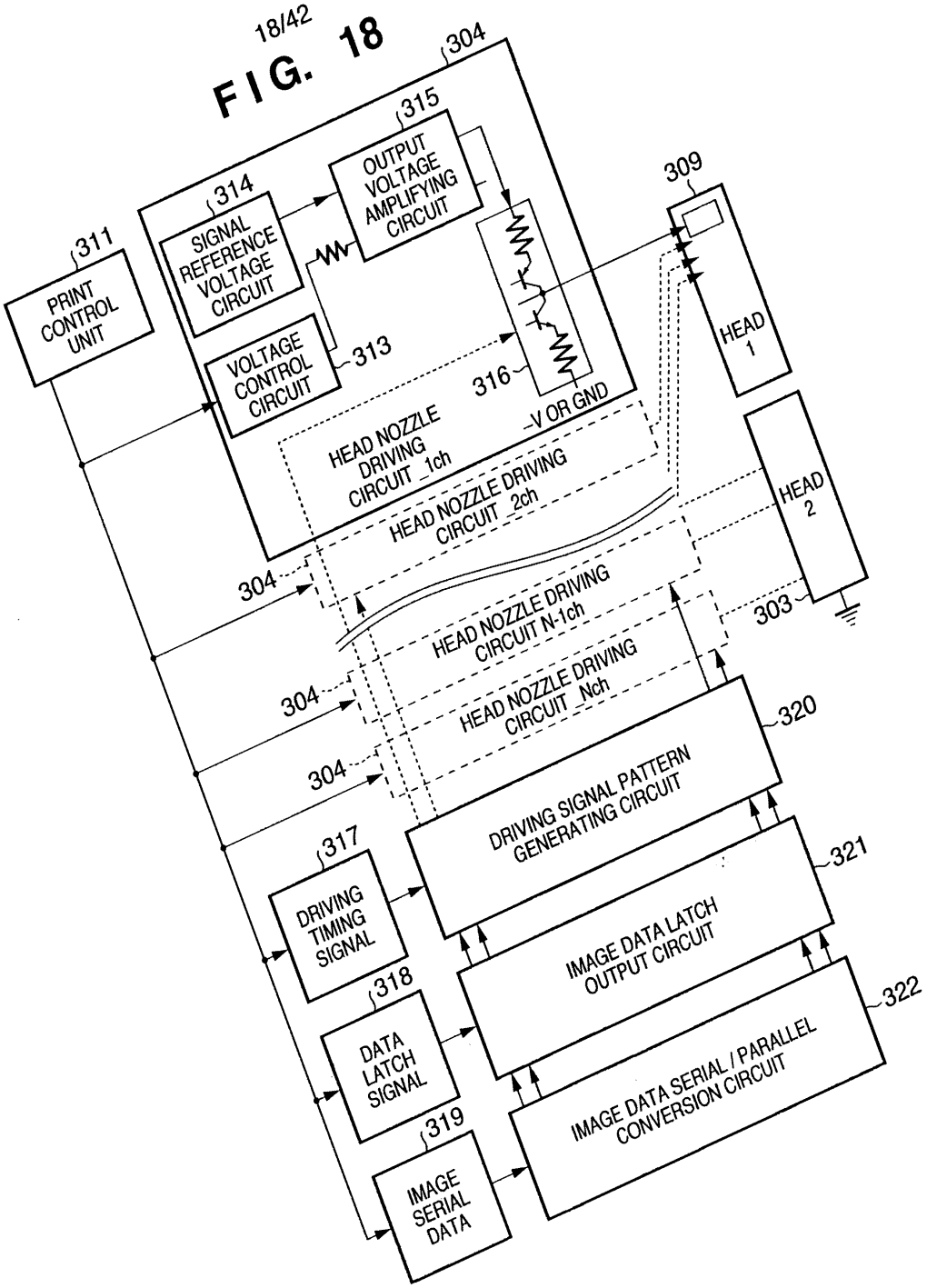
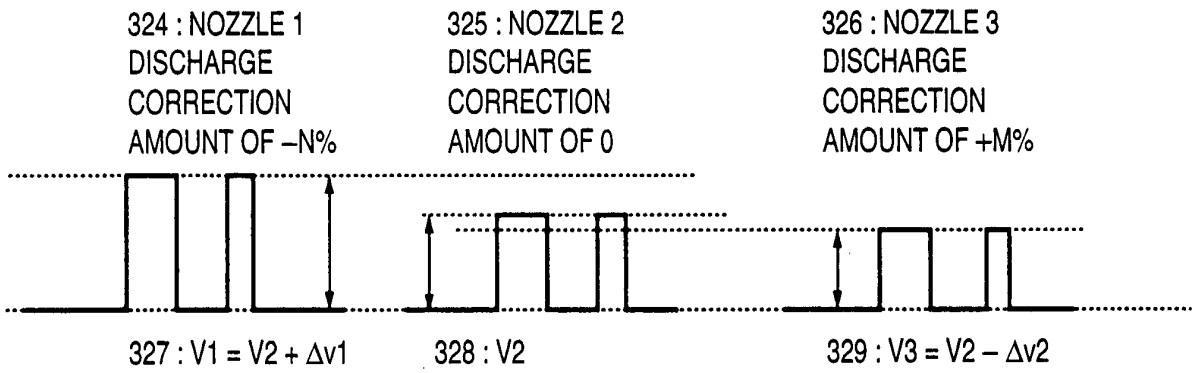


FIG. 19



NOTE THAT FOREGOING CHART REPRESENTS REFERENCE EXAMPLE OF 2-PLS DRIVING
V1, V2, V3: SET DRIVING SIGNAL VOLTAGE, Δv1, Δv2 : CORRECTION VOLTAGE

FIG. 20A

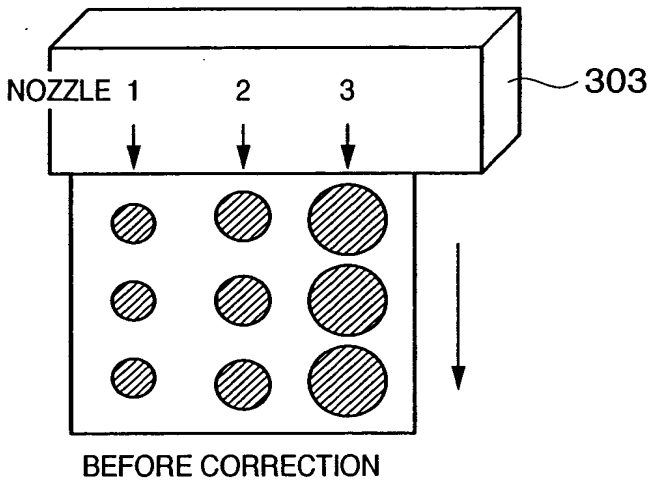


FIG. 20B

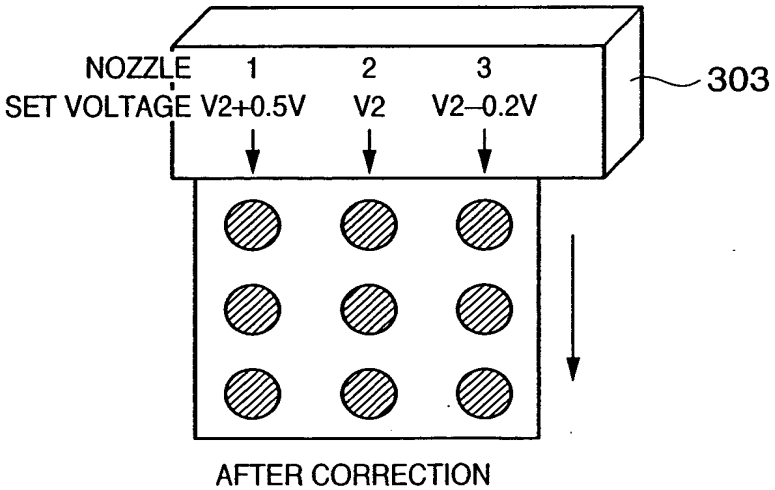


FIG. 21

1. DATA MEASUREMENT WITHOUT CORRECTION OF DISCHARGE AMOUNT OF HEAD

1-1 MEASUREMENT OF DISCHARGE AMOUNT OF HEAD AND DRIVING CONDITION CHARACTERISTICS

(1) CHANGE DRIVING CONDITIONS AT ARBITRARY TWO POINTS OR MORE AND PERFORM PRINTING UPON SETTING OF RESPECTIVE CONDITIONS

↓

(2) MEASURE DISCHARGE AMOUNT OF EACH NOZZLE FROM PRINTING RESULT IN (1)

↓

(3) CALCULATE CORRECTION SENSITIVITY CORRESPONDING TO DRIVING CONDITION FOR EACH NOZZLE FROM CHANGE IN DISCHARGE AMOUNT WITH RESPECT TO DRIVING CONDITION FOR EACH NOZZLE ON THE BASIS OF RESULT IN (2) :

$K = (Vd2 - Vd1) / (V2 - V1)$

WHERE K : CORRECTION SENSITIVITY, AND Vd1 AND Vd2 : DISCHARGE AMOUNTS AT ARBITRARY POINTS

1-2 CALCULATION OF CORRECTION VALUE

(4) CALCULATE AVERAGE VALUE OF ALL NOZZLES FROM CORRECTION SENSITIVITY IN (3) AND DISCHARGE AMOUNT OF EACH NOZZLE UNDER DRIVING CONDITION IN PRINTING OPERATION, CALCULATE DIFFERENCE BETWEEN AVERAGE VALUE AND DISCHARGE AMOUNT OF EACH NOZZLE AND CORRECTION VALUE, AND SET CORRECTION VALUE CALCULATED FROM RESULTANT CORRECTION AMOUNT AND CORRECTION SENSITIVITY IN (3):

$VdX = \Sigma (Vdn1,..., VdnN) / N$

WHERE VdX : AVERAGE DISCHARGE AMOUNT AND Vdn1 AND VdnN : DISCHARGE AMOUNT OF EACH NOZZLE AT ARBITRARY DRIVING VOLTAGES

$Vdn1Y = K^*(Vdn1 - VdX)$

$Vdn2Y = K^*(Vdn2 - VdX)$

.

$VdnNY = K^*(VdnN - VdX)$

WHERE Vd1Y,..., VdnY: CORRECTION VALUE FOR EACH NOZZLE

↓

(5) SET CORRECTION VALUE IN (4) TO DRIVING CONDITION AND PERFORM PRINTING OPERATION

2. DISCHARGE AMOUNT CORRECTION FOR EACH NOZZLE OF HEAD

↓

(6) REPEAT (4) AND (5) IF IT IS DETERMINED FROM PRINTING RESULT THAT DISCHARGE AMOUNT IS NOT TARGET DISCHARGE AMOUNT

↓

TERMINATE DISCHARGE AMOUNT CONTROL PROCESSING

FIG. 22

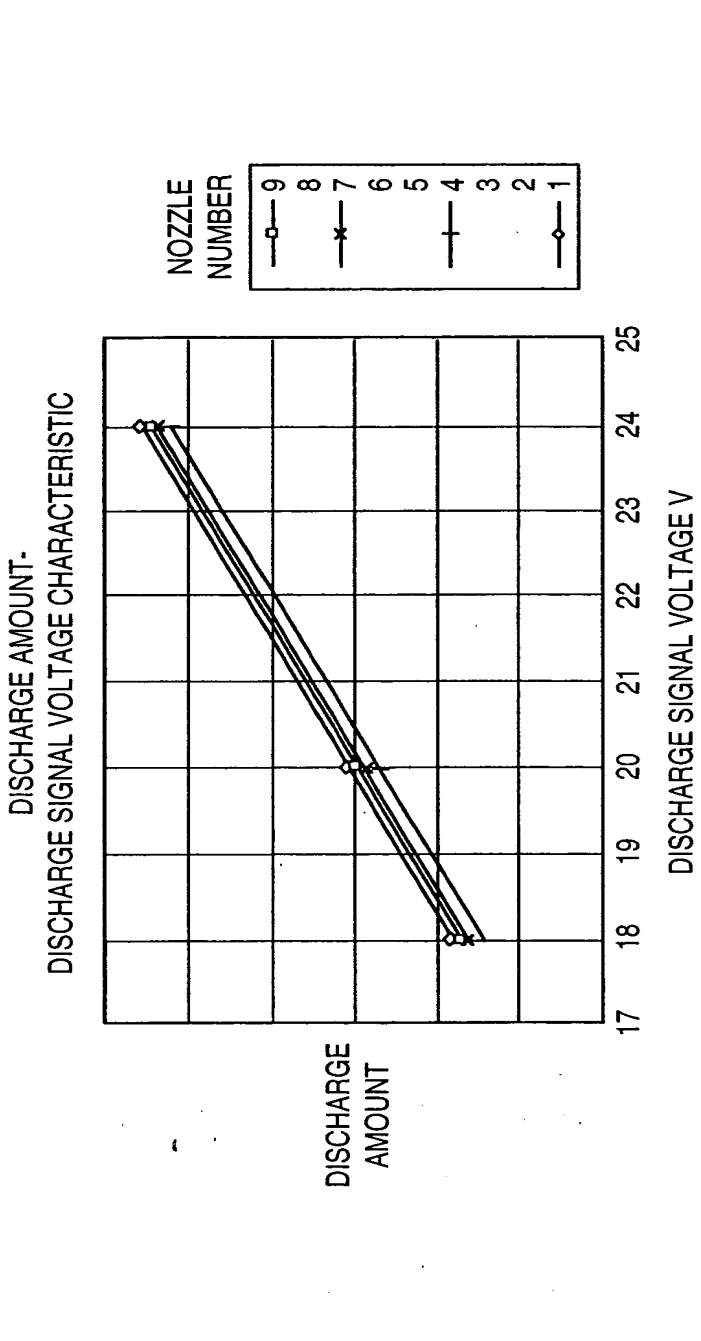


FIG. 23

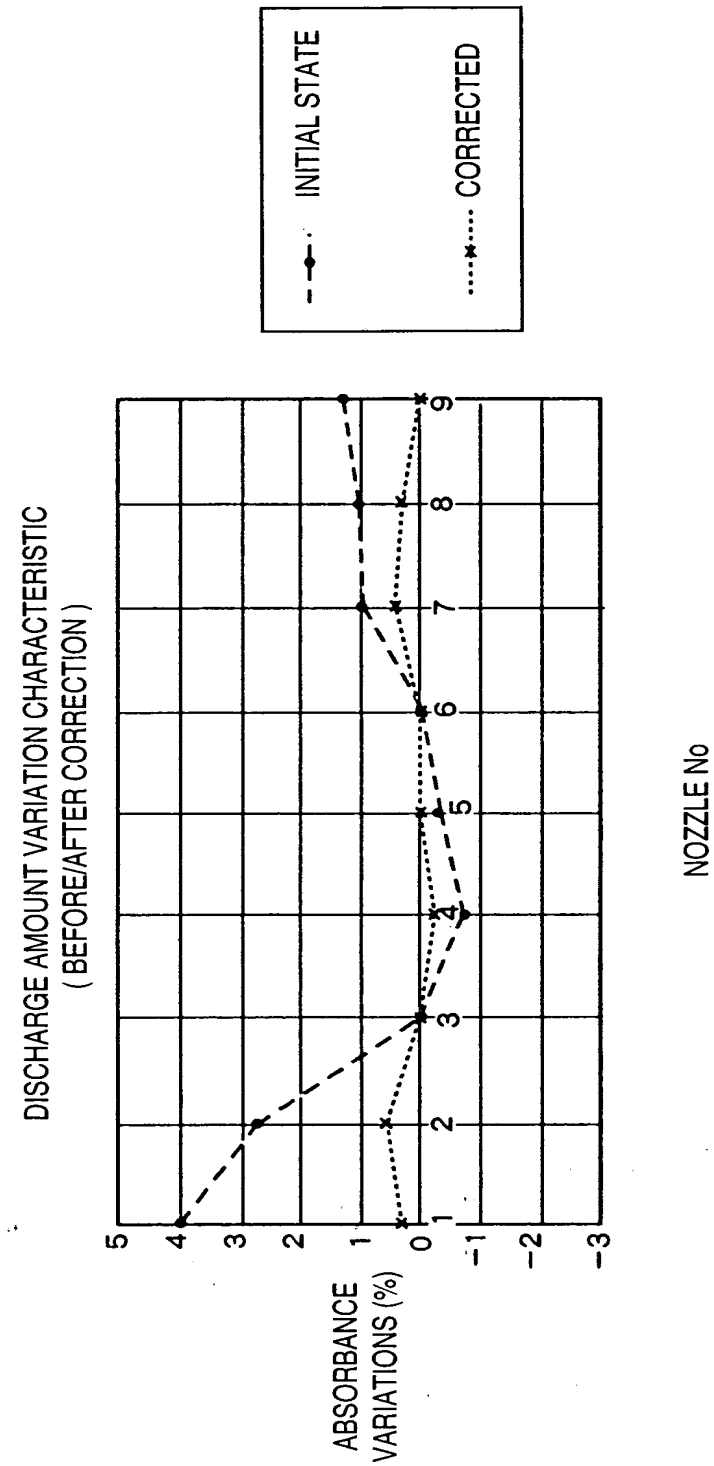


FIG. 24

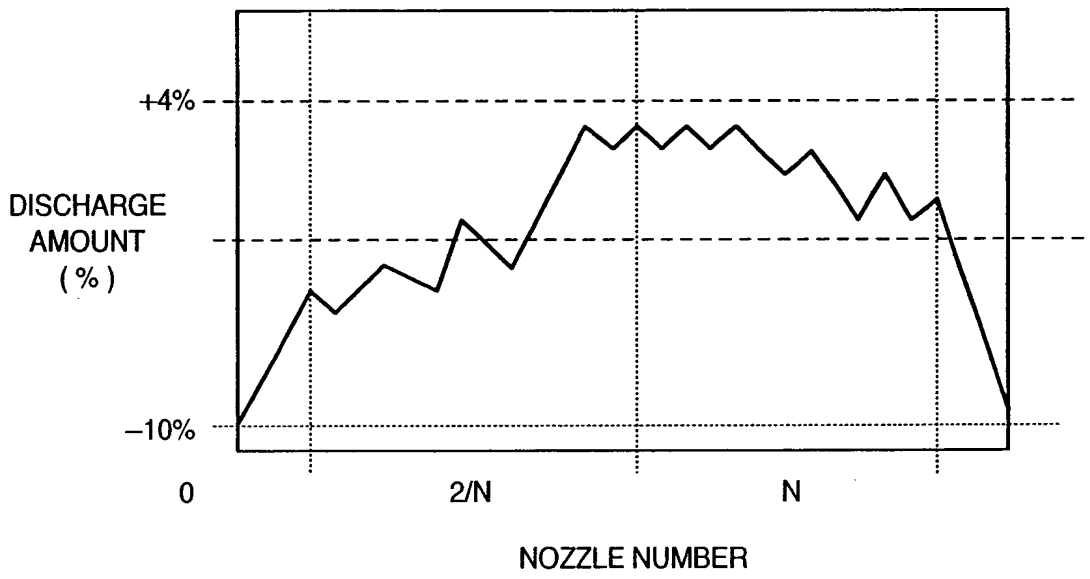


FIG. 25

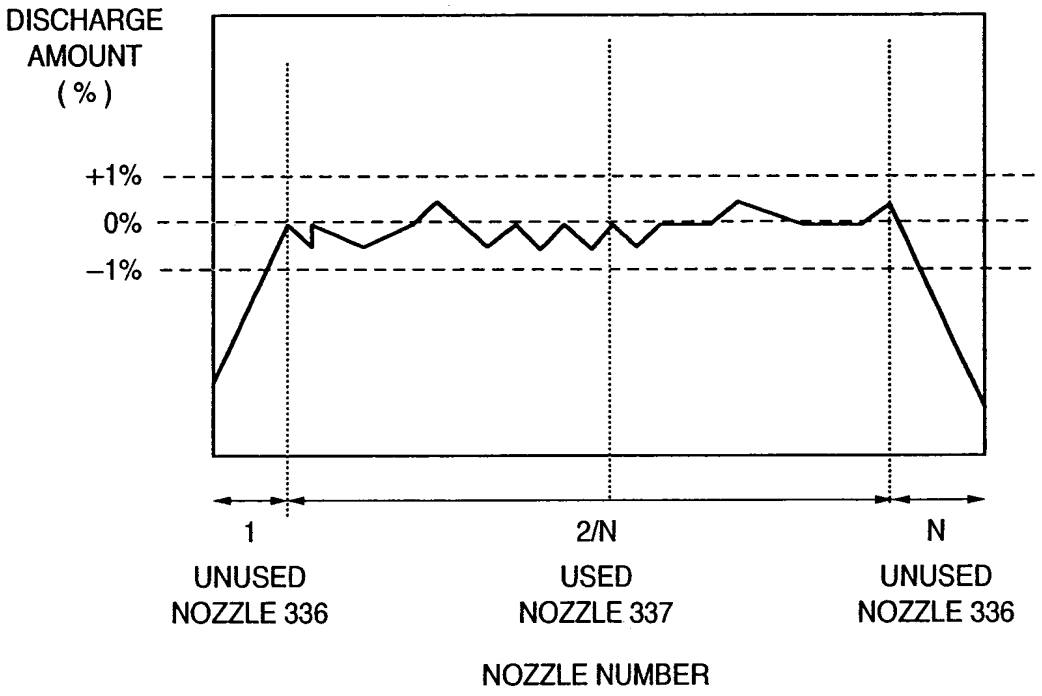


FIG. 26

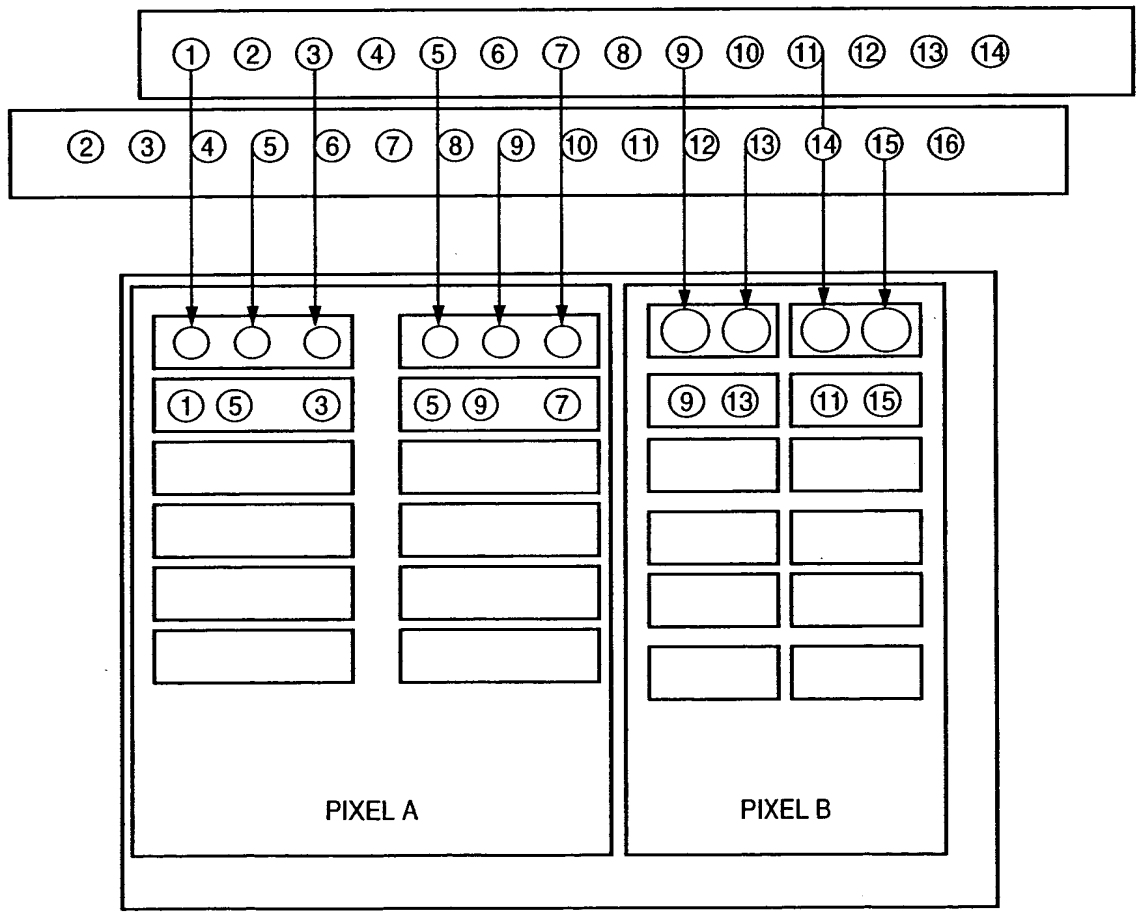


FIG. 27

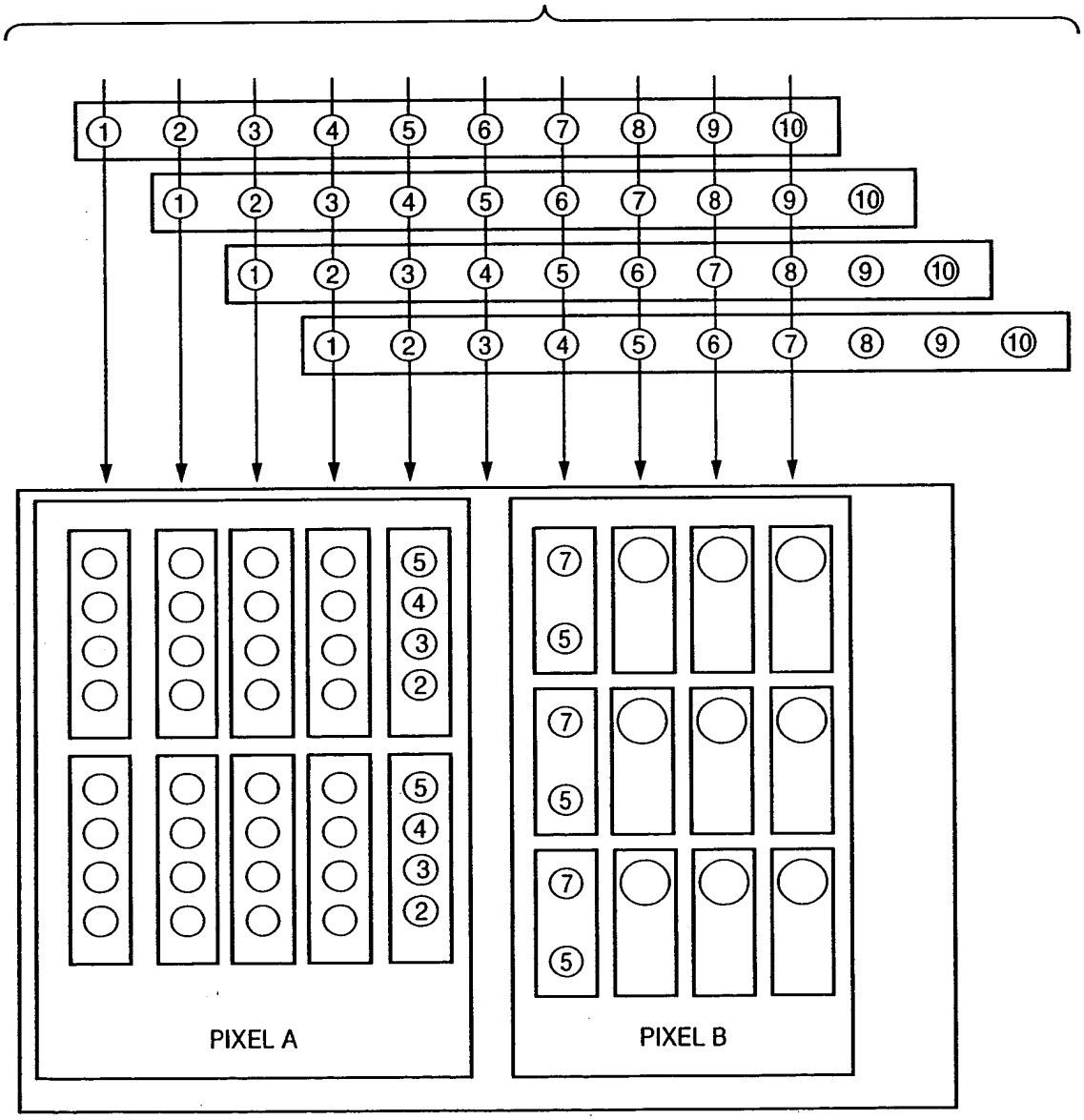


FIG. 28

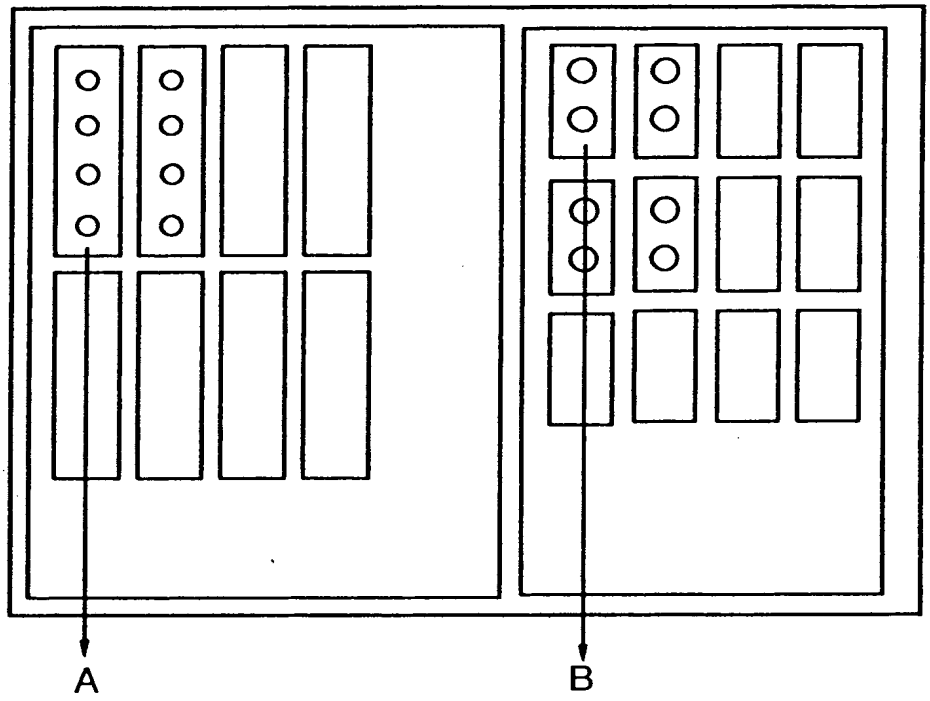


FIG. 29

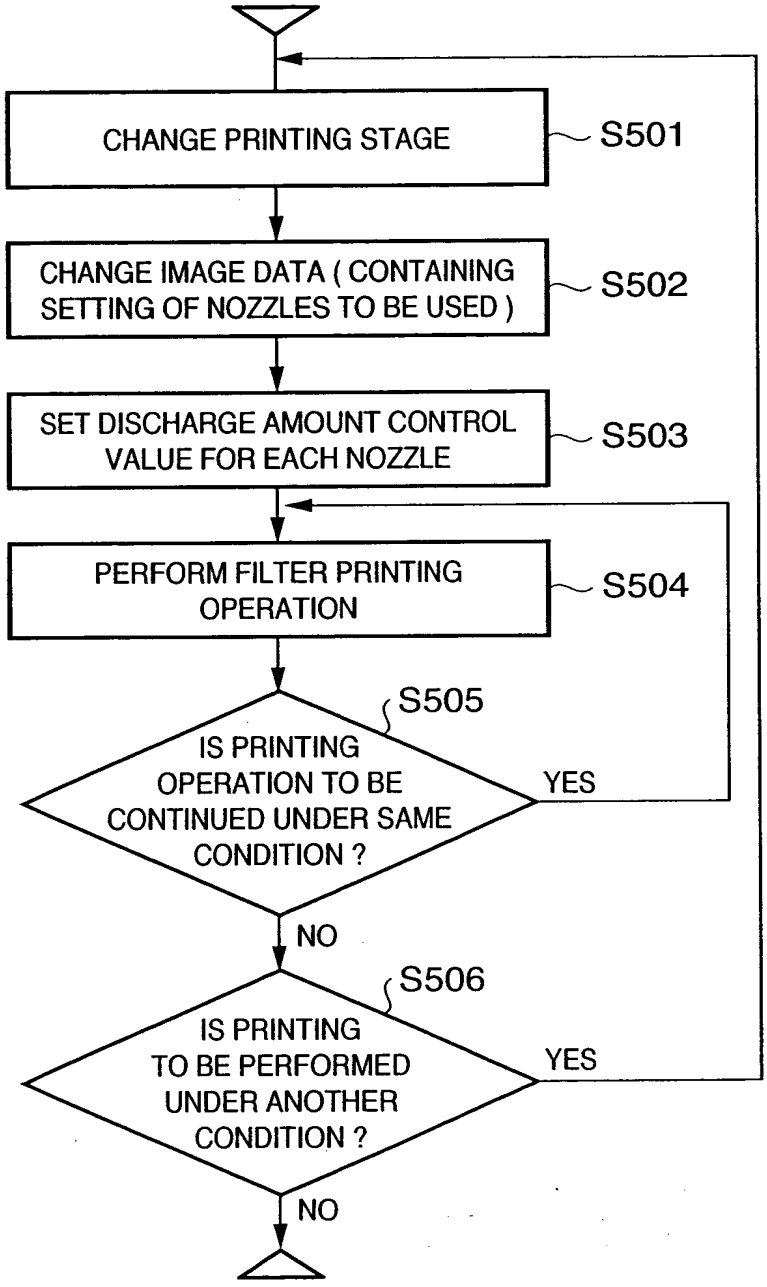


FIG. 30

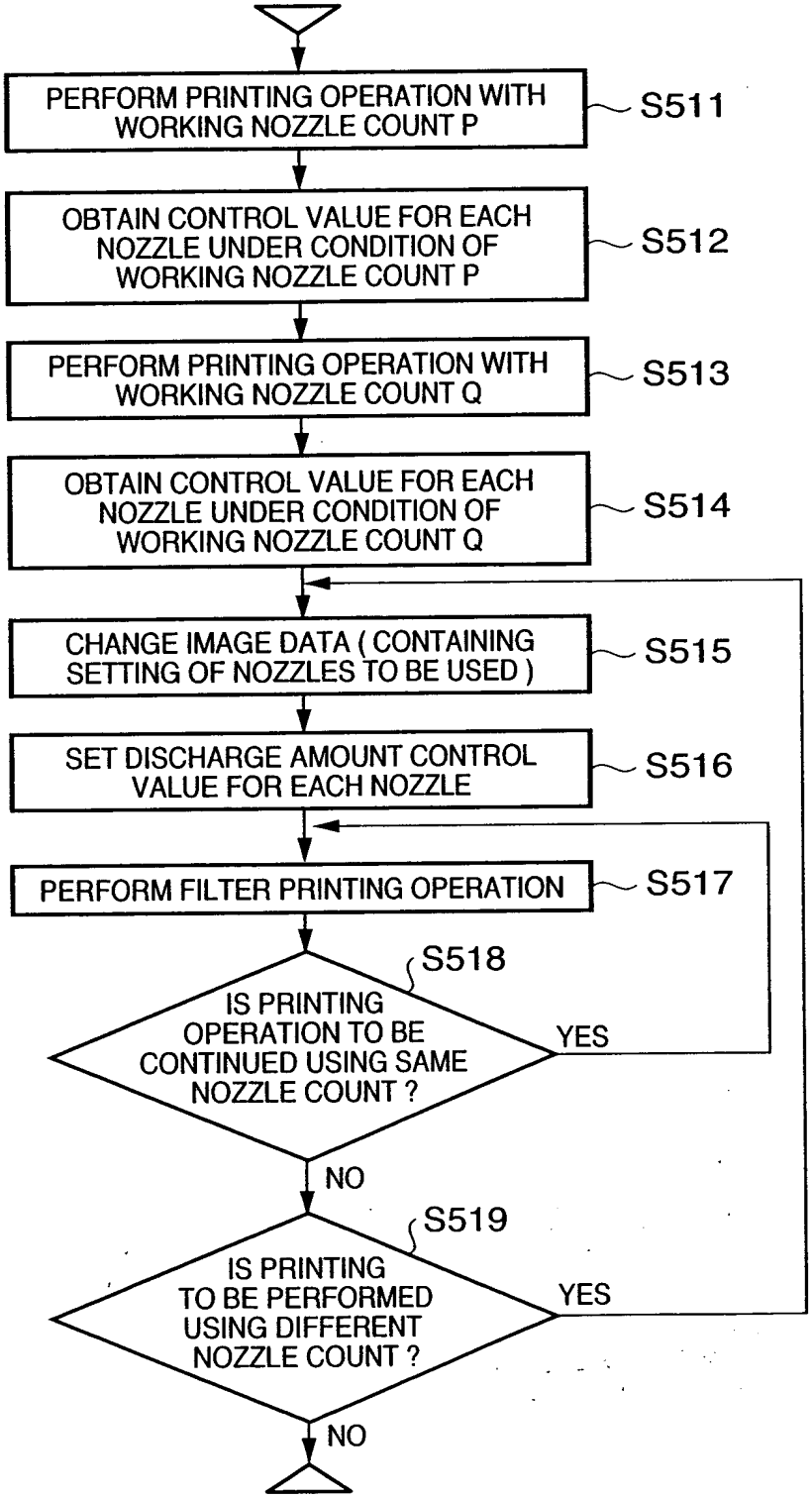


FIG. 31

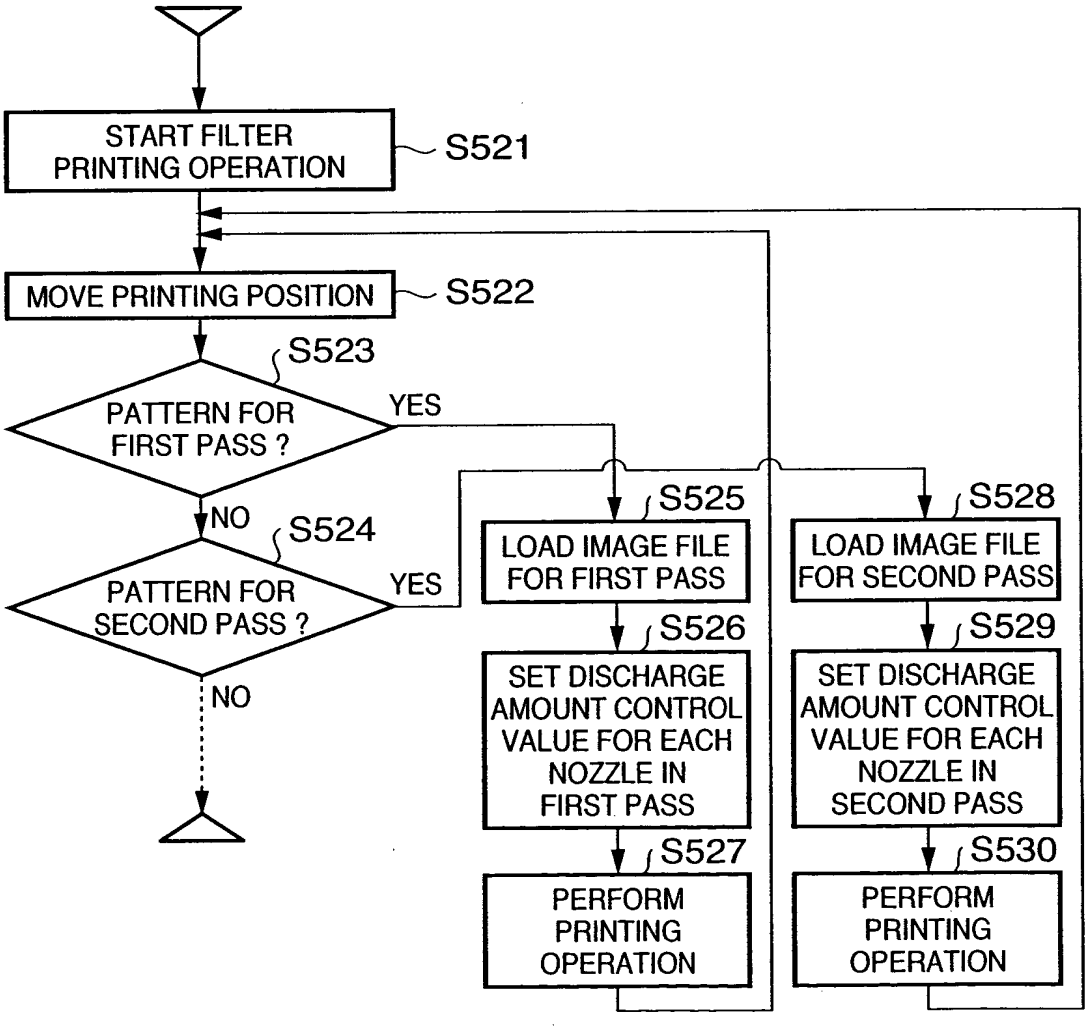


FIG. 32

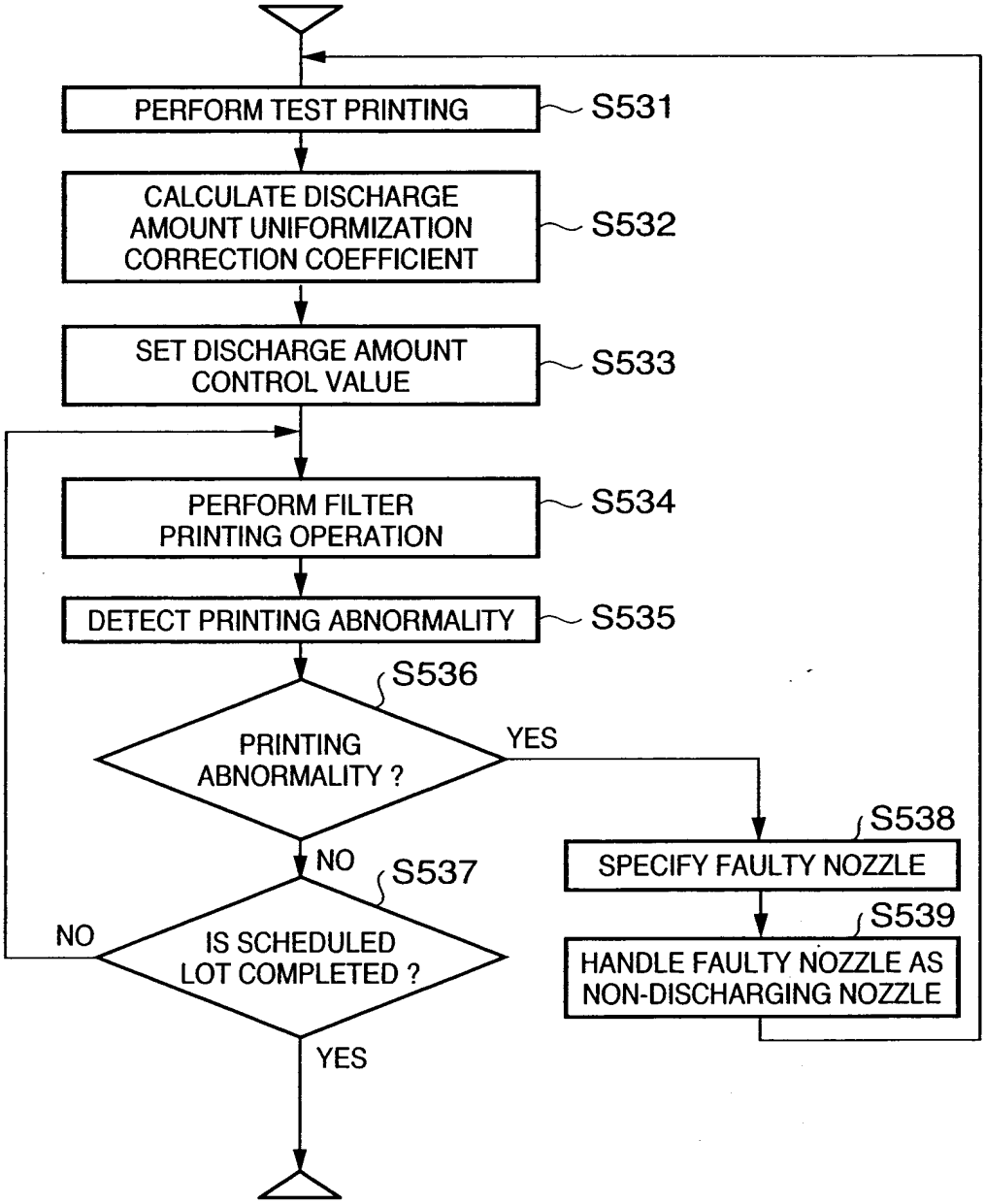


FIG. 33

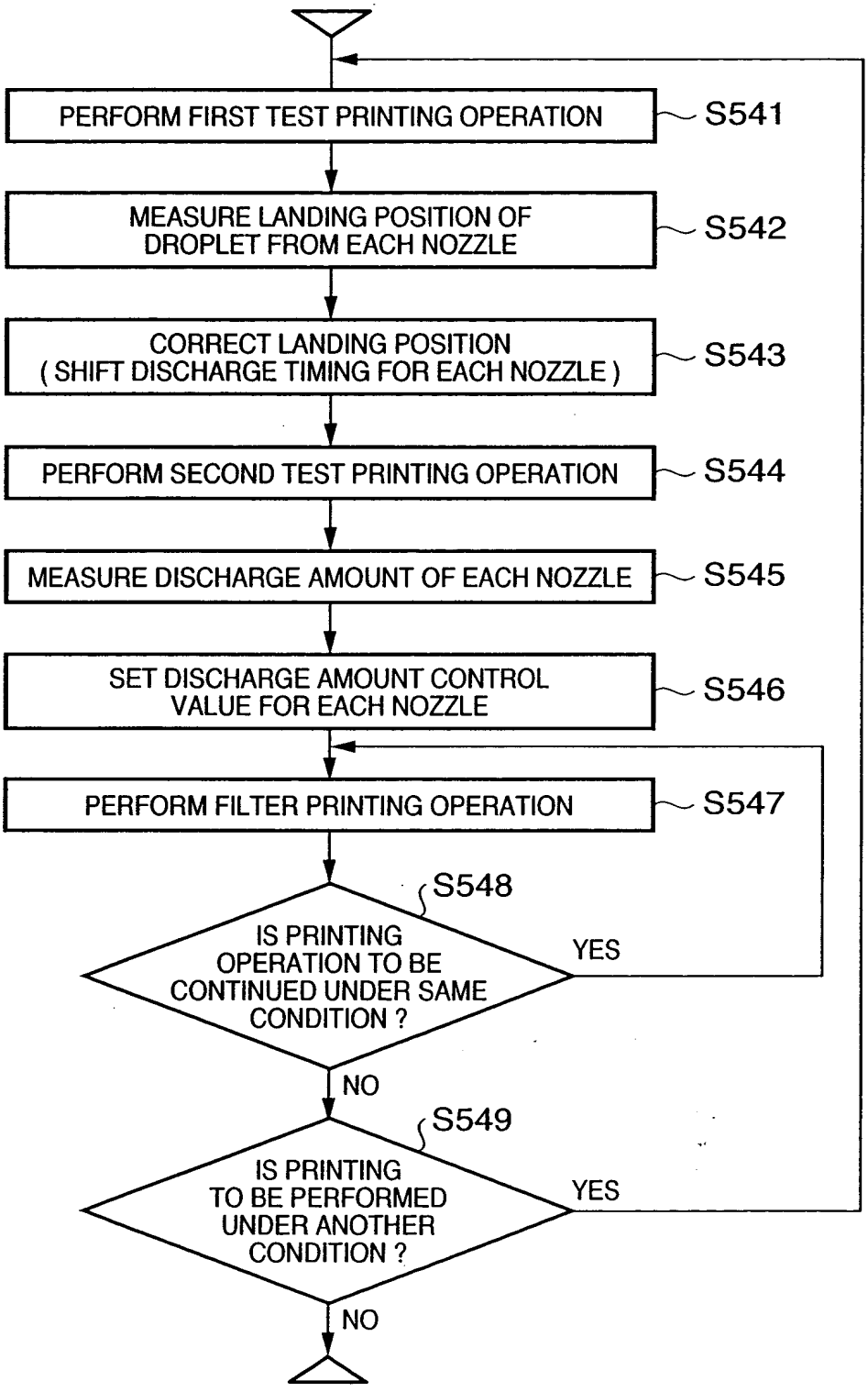
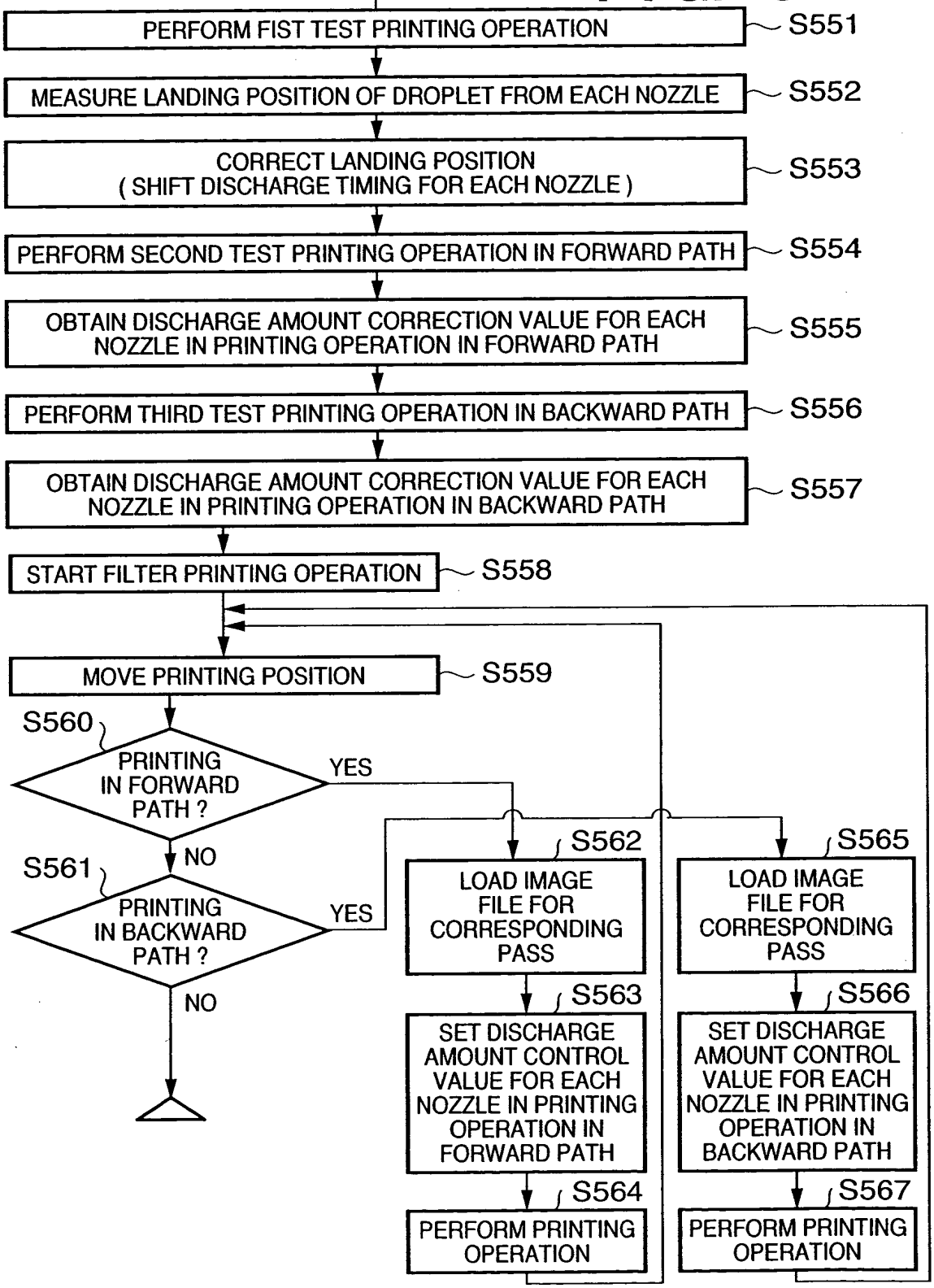


FIG. 34



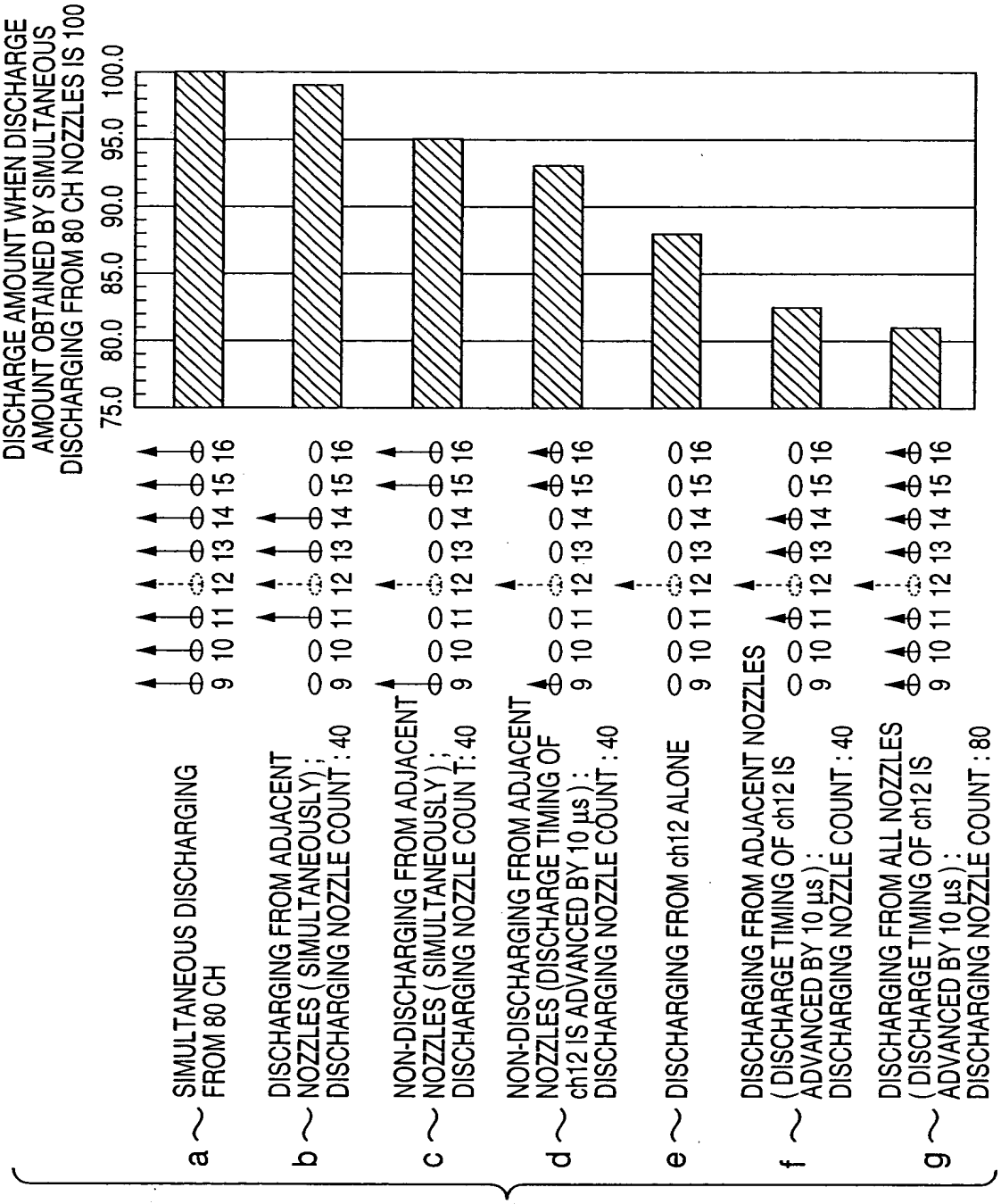


FIG. 35

FIG. 36

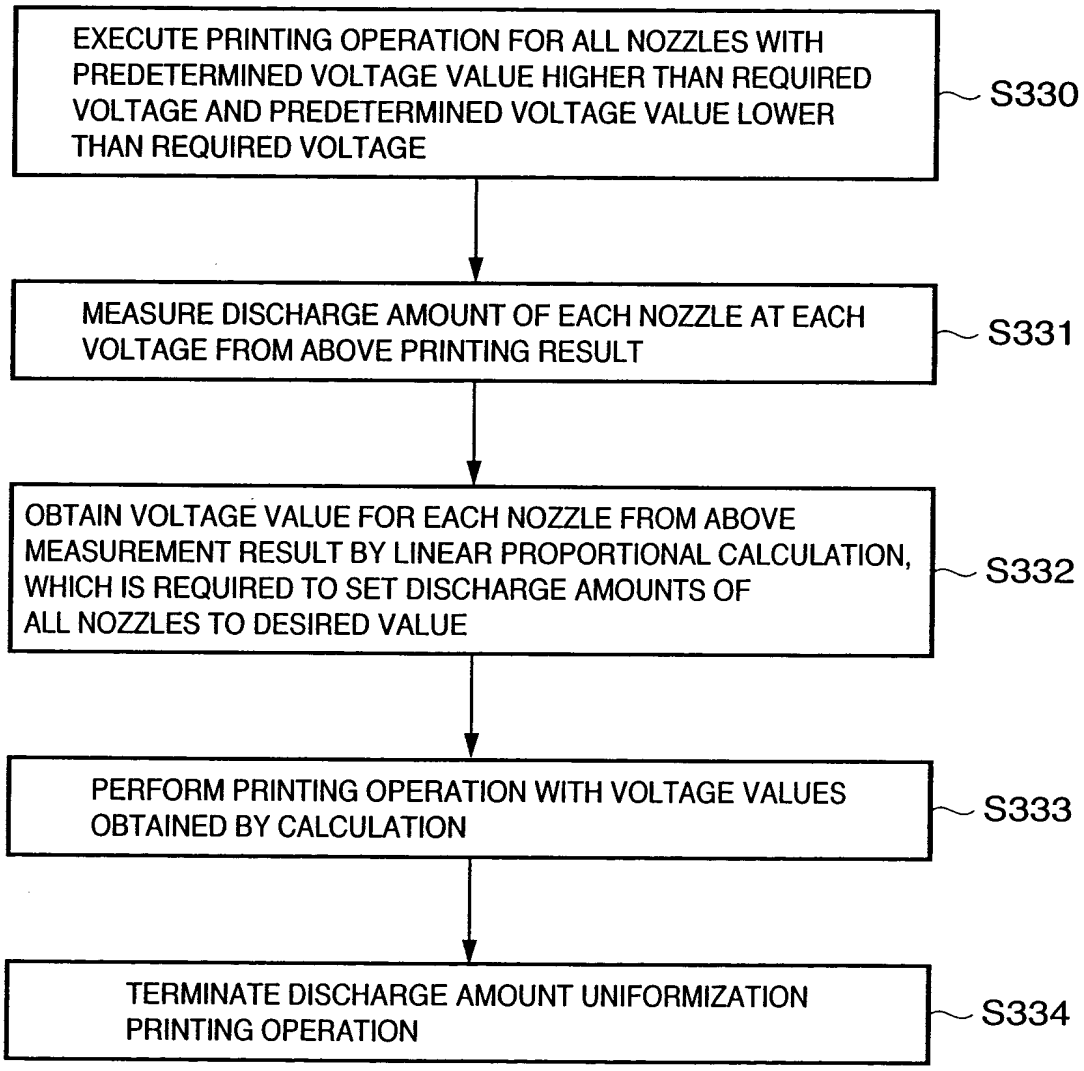


FIG. 37

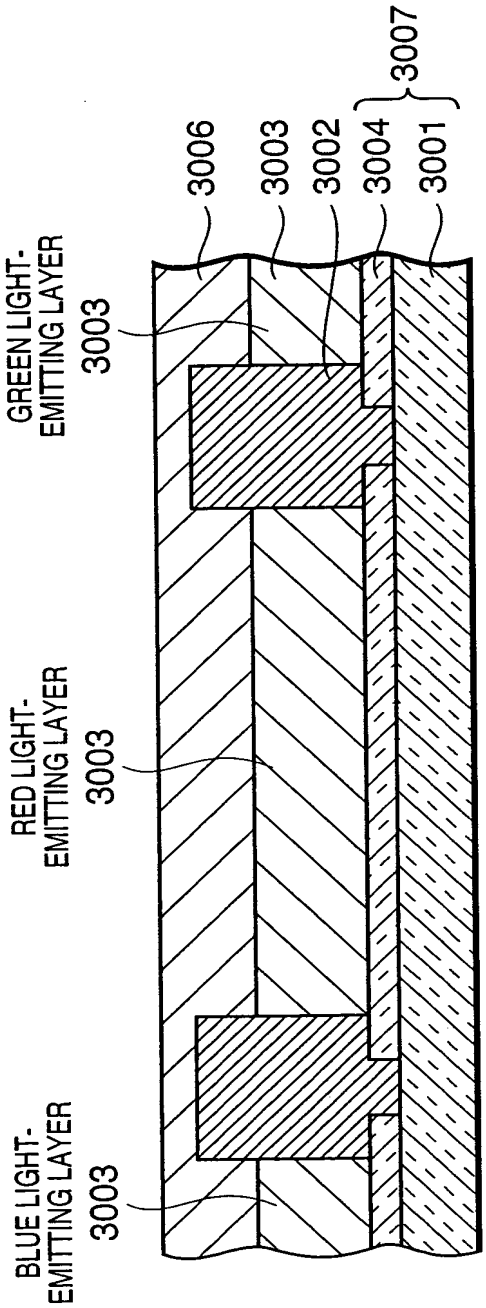


FIG. 38A

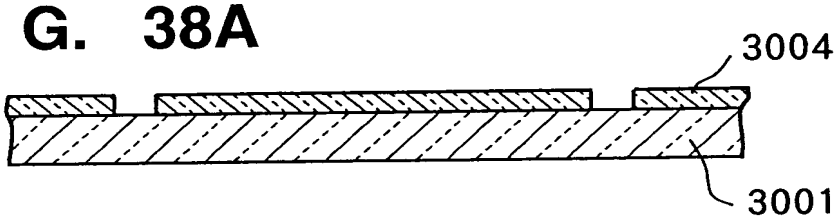


FIG. 38B

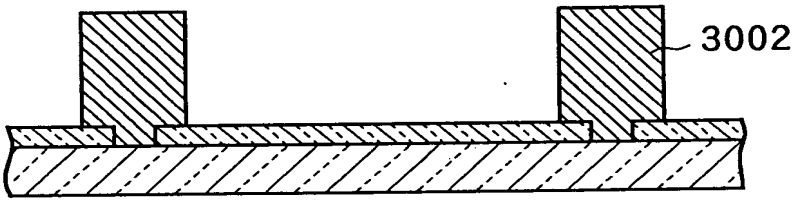


FIG. 38C

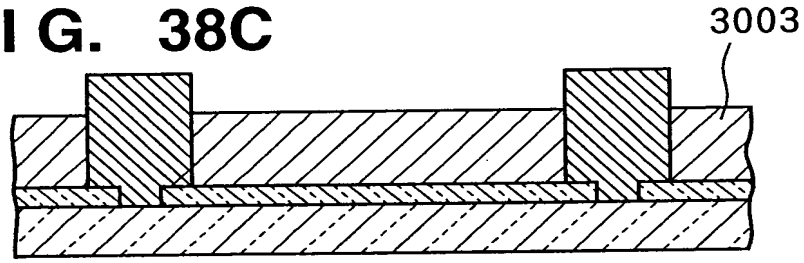


FIG. 38D

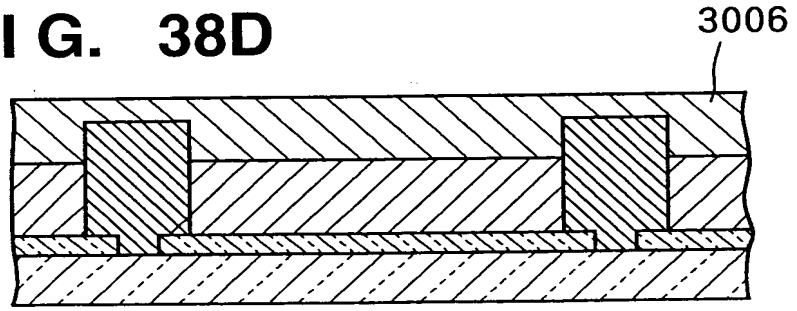


FIG. 39A

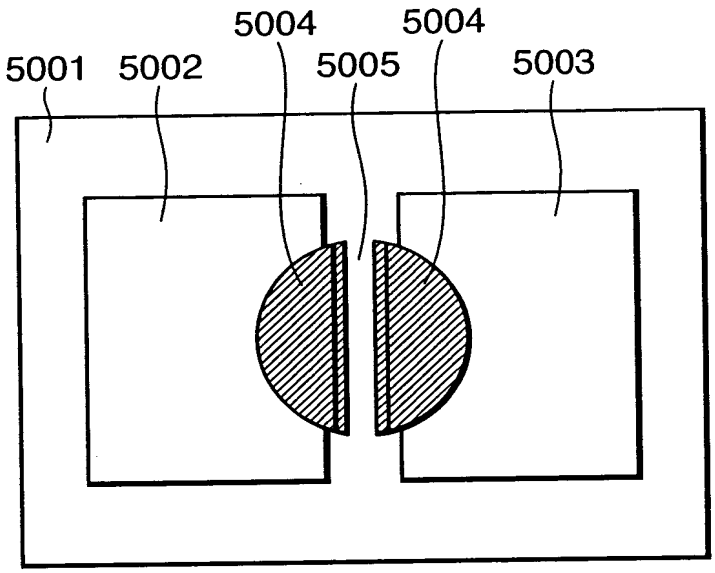


FIG. 39B

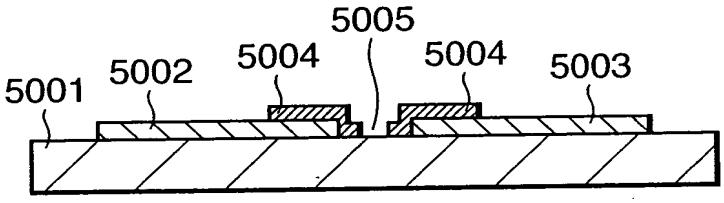


FIG. 40A

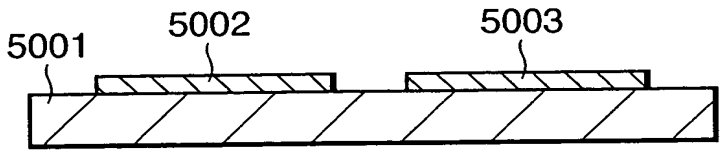


FIG. 40B

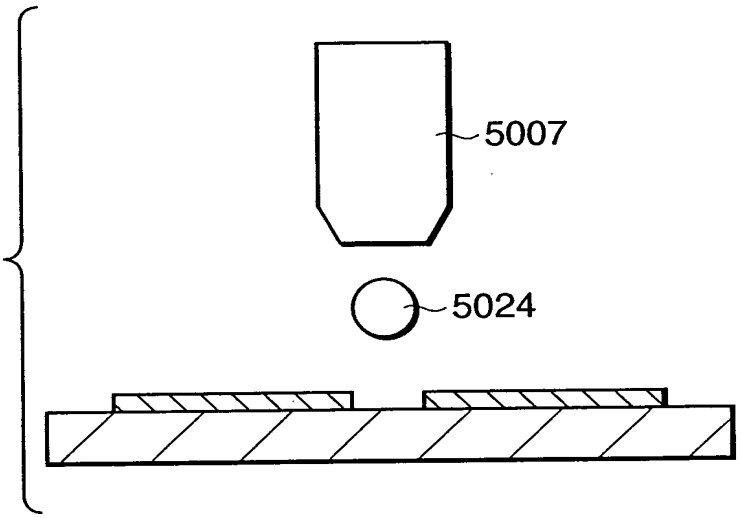


FIG. 40C

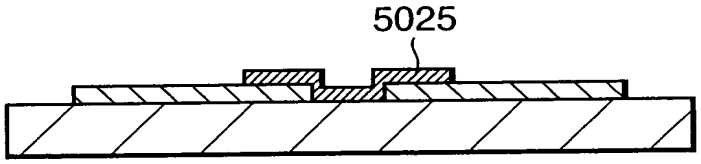


FIG. 40D

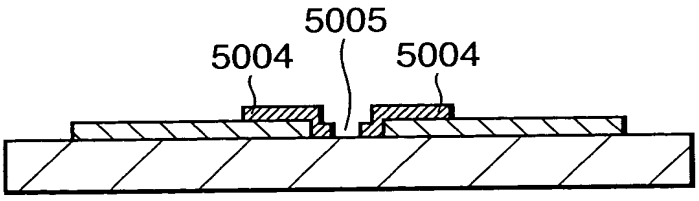


FIG. 41

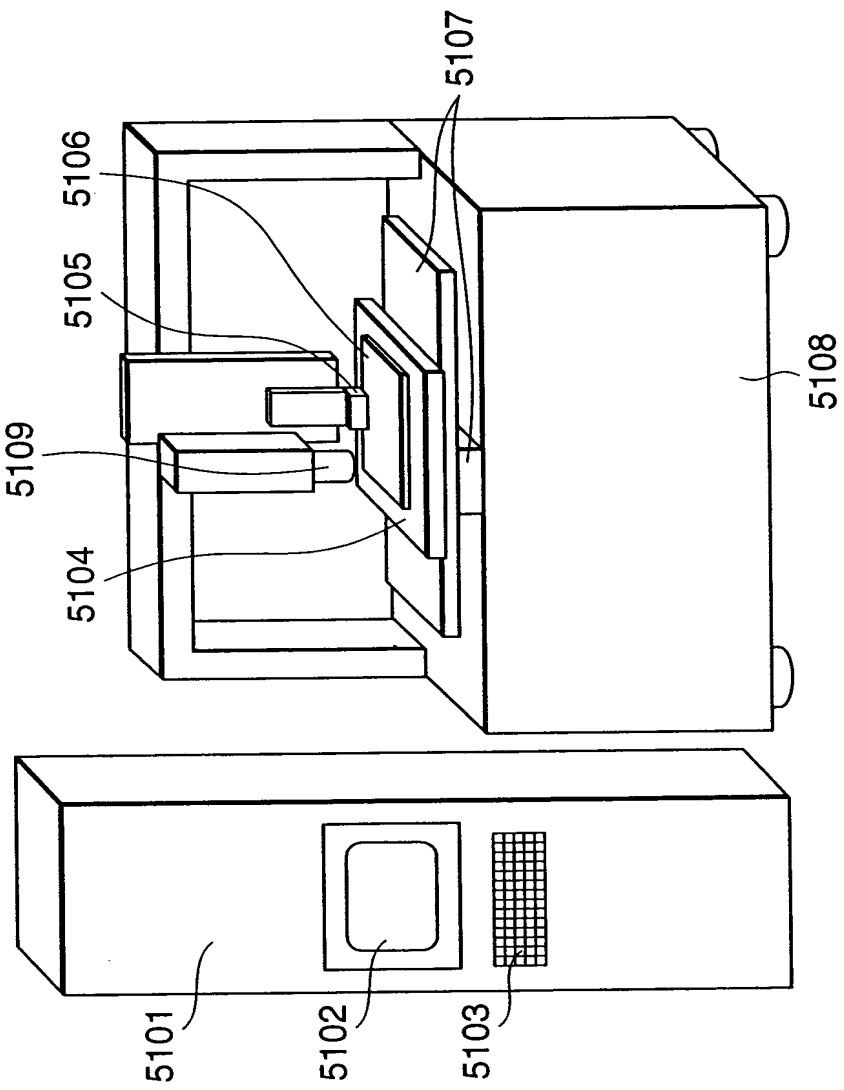


FIG. 42